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UNIVERSITY OF MASSACHUSETTS

BULLETIN

1978-1979

Undergraduate Course and Faculty Directory, Amherst, see previous year bulletin

Graduate Bulletin, Amherst, 1978-1979

Stockbridge School of Agriculture, Amherst, 1978-1980

Summersession, Amherst, 1978

Credit-Free Workshops, Continuing Education, Amherst, Summer 1978

Evening College Courses and Credit-Free Workshops, Continuing Education, Amherst, Fall 1978

Evening Courses and Credit-Free Workshops, Continuing Education, Amherst, Spring 1979

Late Afternoon and Evening School of Education Learning Opportunities, Amherst, Fall 1978

Course of Studies Bulletin, Boston, 1978-1979

Medical School Catalogue, Worcester, 1978-1979

university of massachusetts at amherst

1978/79

graduate school bulletin

1978-79
Graduate School Bulletin
University of Massachusetts at Amherst

July 1978

The Graduate School Bulletin is published annually.

Factors of race, color, sex, age, religion, national origin or handicap are not considered in the admission or treatment of students or in employment, in accordance with Federal and State laws and regulations.

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1978-1979 Academic Calendar

Tuesday, September 5	Registration for graduate students.
Wednesday, September 6	Classes begin.
Thursday, September 12	Last day to register.
Thursday, September 19	Last day to add courses.
Sunday, October 1	Application deadline for Spring 1979 admission.
Wednesday, October 17	Last day to drop courses with DR.
Monday, October 9	Holiday.
Friday, November 10	Holiday.
Monday, November 13	Spring semester preregistration week begins.
Wednesday, November 22	Thanksgiving recess begins after last class.
Monday, November 27	Classes resume.
Monday, December 18	Final examinations begin.
Saturday, December 23	Final examinations end; Christmas recess begins.
Friday, December 29	Degree requirements deadline for February 1, 1979 degrees.
Monday, January 29	Registration for graduate students.
Tuesday, January 30	Classes begin.
Monday, February 5	Last day to register.
Monday, February 12	Last day to add courses.
Monday, February 19	Holiday.
Thursday, March 1	Application deadline for Summer or Fall 1979 admission.
Monday, March 12	Last day to drop courses with DR.
Saturday, March 17	Spring recess begins after last class.
Monday, March 26	Classes resume.
Monday, April 16	Holiday.
Monday, April 23	Fall semester preregistration week begins.
Monday, April 30	Degree requirements deadline for May 26, 1979 degrees.
Thursday, May 17	Final examinations begin.
Wednesday, May 23	Final examinations end.
Saturday, May 26	Commencement.
Friday, August 31	Degree requirements deadline for September 1, 1979 degrees.

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The University

The University of Massachusetts is the state university of the Commonwealth. It was founded in 1863 under the provisions of the Morrill Land Grant Act passed by the United States Congress one year earlier.

Situated in one of the most picturesque sections of the state, the University at Amherst joins with its academic neighbors—Amherst, Smith, Mount Holyoke, and Hampshire Colleges—in maintaining the rich tradition of education and cultural activity associated with the Connecticut Valley region. The University's Amherst Campus consists of approximately 1,100 acres of land and 110 buildings. Physical growth has been carefully planned, with provisions for additional buildings and facilities to accommodate an enrollment of approximately 25,000 students.

The Dean of the Graduate School, in collaboration with the University Graduate Council, exercises overall review and supervision of graduate programs conducted in the several colleges and provides guidance in the development of new programs as well as the maintenance of standards for existing programs. Each college of the University has developed its graduate programs in accordance with the highest national professional standards of the respective fields.

For information about University of Massachusetts at Boston graduate programs, consult the *University of Massachusetts at Boston Bulletin.*

Information on graduate programs in medicine is found in the *University of Massachusetts at Worcester Medical School Catalogue.*

COLLEGES CONDUCTING GRADUATE PROGRAMS

Seven colleges and schools of the University are authorized to offer graduate degree programs through the Graduate School: the College of Arts and Sciences, the College of Food and Natural Resources, the School of Business Administration, the School of Education, the School of Engineering, the School of Health Sciences, and the School of Physical Education.

University Library

The University Library system consists of the main University Library which houses most materials in the social sciences and the humanities, and three branch libraries. Most of the science collection is found in the two principal branch libraries: the Morrill Biological Sciences Library, on the second floor of the Morrill Science Center; and the Physical Sciences Library, in the Graduate Research Center. The Music Library, a collection of scores and thematic indexes, is in the Fine Arts Center.

Almost all the material in the libraries is listed in the card catalog on the main floor of the University Library, one floor down from the entrance level. Present holdings include over 1,550,000 books, periodical volumes and government documents, and over 600,000 microforms. About 13,500 serials and periodicals are currently received and are distributed according to subject matter in the University Library or the branch libraries. Serial holdings and locations are listed in the card catalog and the *Pioneer Valley Union List of Journal and Serial Holdings*, a computer-produced publication which also includes serial holdings of Amherst, Hampshire, Mount Holyoke, and Smith College libraries, Forbes Public Library, and the Hampshire Interlibrary Center.

The University Library is a depository for U.S. government publications and also regularly receives many categories of publications from the United Nations and other international agencies, as well as from the Commonwealth of Massachusetts and its cities and towns. The documents collection is located on the 21st floor of the University Library.

At the Reference and Information Desks of the University Library and the science libraries, one may obtain assistance in using the library and its collections. Copies of the *Library Guide* and the *Five College Library Handbook* are available from the reference librarians, along with information about fee-based computer searches of selected bibliographic data bases, interlibrary loan, and the services available through the library system's membership in the Boston Consortium and the Center for Research Libraries.

Hampshire Inter-Library Center

The University Library is a participating member of the Hampshire Interlibrary Center, a cooperative facility for the acquisition, storage, and servicing of research materials, especially journals, documents, and scholarly sets. Incorporated in 1951 to augment library resources in the area, HILC is jointly operated by the libraries of the five institutions: Amherst, Hampshire, Mount Holyoke, Smith, and the University of Massachusetts. The HILC collection numbers about 35,000 bound volumes, and approximately 1,000 journals are received currently. The Center is located at Amherst College.

The University Computing Center

The University Computing Center provides the computing services required to support the instruction and research activities of the faculty and students of the University. Computing services include batch, remote batch and time sharing operations. A large number of popular programming languages and an extensive library are available to the community. The time sharing system allows access to the computer from over 150 terminals located around the campus. As many as 90 simultaneous users can be accommodated. Programming languages that are available are FORTRAN, COBOL, BASIC, COMPASS, APL, SNOBOL, LISP and other special purpose languages. In addition to this, other program packages are available such as SPSS, BMDs, IMSL, SSP, Univac, MATH/STAT, etc. Users can also maintain and share their own private libraries.

In addition to the computing services, the University Computing Center offers many services including applications programming, consulting, program assistance and keypunching. Short courses in programming and various languages and the use of the various systems are offered as needed by the community. Formal full-term courses in computing techniques are offered by the Computer and Information Science Department.

The equipment of the University Computing Center consists of a Control Data Corporation CDC Cyber 74-18 which has one CPU, 10 PPU's and 131K words of memory. Peripheral devices include disk drives, seven-track and nine-track tape drives, card readers, printers, card punch and two TEMPO-I computers used as communications processors. Remote terminals include Teletypes and APL compatible terminals. Off-line equipment includes a plotter, keypunches, collator, reproducer, sorter and accounting machines.

Water Resources Research Center

The Water Resources Research Center at the University's Amherst campus supports research in the planning and development of water and related land resources including water supply, water quality, flood control and hydropower. Areas covered include engineering, economics and hydrogeology; management and decision-making institutions; and the ecology of wetlands, rivers, lakes, and coastal waters. Through its research the Center also provides training opportunities for persons interested in master's and doctoral degrees in water resources-related fields. The Center assists the various departments in the development of new and strengthened water resources programs and courses. The Center organizes and sponsors short courses and seminars on water-related subjects of special interest.

Labor Relations and Research Center

The Labor Relations and Research Center conducts research in the field of labor relations, provides consultation services, and supports a regular program of academic course work. A Master of Science degree in Labor Studies is described elsewhere in this *Bulletin*. In addition, it provides special lectures in the field of labor relations for other programs on and off campus as well as training courses for the community at large. A significant amount of field work is part of the program. Inquiries should be addressed to the Director of Labor Relations and Research Center, 125 Draper Hall, University of Massachusetts, Amherst, MA 01003.

The Marine Station

The Marine Station is an interdisciplinary research facility operated by the Graduate School and located on the North Shore of Cape Ann, midway between Gloucester and Rockport. The present laboratory will soon be doubled in size when current construction is completed. Deep water mooring is provided for its several vessels. The Station is equipped for a wide range of marine studies, containing cultural facilities, darkrooms, instrument rooms, a seawater system, machine shop, small library, large general purpose laboratory, and the Coordinator's office. Both basic and applied research is conducted by faculty and graduate students from the Amherst campus; accommodations are also made, on a priority basis, for visiting scientists, faculty and students from other institutions. Short-run living accommodations

are available at no cost in Gloucester for several students and other researchers. For further information, contact the Dean of the Graduate School.

The Suburban Experiment Station

A part of the College of Food and Natural Resources, the University's Suburban Experiment Station is located in Waltham, about 10 miles west of Boston. It has 30 acres of land available for field experiments under urban/suburban conditions. Well-equipped greenhouses and laboratories for studying the effects of environmental stresses on plants are also available. Represented disciplines include plant pathology, entomology, plant breeding and plant genetics.

Faculty members regularly participate in graduate programs and are willing to cooperate in studies involving urban/suburban stresses.

Departments of Military and Air Science

Seniors and graduate students with two years of academic study remaining who are interested in becoming commissioned officers in the United States Army or United States Air Force may apply to the Department of Military Science or to the Department of Air Science, respectively, for a two-year commissioning program. Selected students receive $100 per month and are granted Selective Service deferments. Two-year scholarships are available for qualified applicants. Those interested should consult the head of either department at least six months prior to the beginning of their final two years at the University. Early application is necessary for administrative processing. Candidates must pass an aptitude test, a physical examination, and attend a six-week summer camp.

Veterans may be given constructive credit for previous military service and instruction. Based on qualifications, veterans may earn a commission by completion of only one year of military science instruction. Veterans may receive $100 per month in addition to other veterans' benefits.

University of Massachusetts Abroad

Freiburg Program

The Freiburg Program, begun in 1966-67, offers to graduate students and selected upper-division undergraduates an opportunity for a year of advanced studies in the humanities, social sciences, and natural sciences and mathematics at the University of Freiburg, Germany. Although a good command of German is necessary for admission, the program is not restricted to students concentrating in German language and literature. However, a superior academic record is required for admission. Accepted students may enroll in a wide variety of courses at the University of Freiburg, including political science, comparative literature, philosophy, economics, music, psychology, and German language and literature.

The program is directed in Freiburg by a member of the University of Massachusetts faculty and is headquartered in the University of Massachusetts Study Center in Freiburg. The relationship between the two universities is developing into a genuine partnership, with yearly exchange of students and faculty from each institution.

Students from other colleges and universities applying to study in the Freiburg Program at the graduate level must apply to the Graduate School of the University of Massachusetts as well as to the Office of International Programs, Whitmore Administration Building.

Basic cost of the program is estimated at $3000 annually, including room and board, tuition and fees, but excluding international travel. Scholarships are available to outstanding students, and Fulbright scholarships may be applied to participation in the Freiburg Program. Applications and additional information are available at the Office of International Programs.

Berlin-Freiburg Summer Program

The Department of Germanic Languages and Literatures sponsors a nine-week summer program in West Berlin and Freiburg, Germany. Courses in elementary, intermediate, and ad

vanced German are offered, and students may earn up to 6 University of Massachusetts credits. There is a two-week period for independent travel in Europe between the initial week in Berlin and the five weeks spent in Freiburg.

The course fee for the program is about $1125. This fee covers round-trip international travel, tuition, room and board, special excursions, and lectures which supplement the basic program.

Although primarily for undergraduates, the program is open to graduate students as well. One of its aims is to offer to students enrolling in the one-year Freiburg Program the opportunity to gain greater proficiency in German prior to participation in that program.

For further information contact Professor Sara Lennox, Department of Germanic Languages and Literatures, Herter Hall.

Summer Program at Oxford

A special group of courses in English literature is regularly offered at Trinity College, Oxford, during July and part of August. The six-week session is part of the regular Summer Session of the University of Massachusetts and awards University of Massachusetts credit. Courses are taught by Oxford faculty, with the Bodleian Library available for extensive research. Graduate and undergraduate courses are offered, subject matter varying according to the availability of specialists at Oxford and the interests of students. Evening lectures by noted authorities supplement course offerings. Students from colleges and universities other than the University of Massachusetts are also eligible. Admission requirements include 15 hours of credit in literature and good academic standing. The overall cost to the student is about $1000 excluding international travel. There is free travel time before and after the seminar. To apply, contact Dean Ernest Hofer, Fine Arts and Humanities Faculty, South College.

Summer Program at Dijon

In its study program at Dijon in France, July to mid-August, the French Department offers up to six graduate and undergraduate credits in French, History, Political Science and Art. Intermediate competence in written and spoken French is a prerequisite for courses in History, Political Science and Art. Excursions to Bezelay, the Cote d'Or, and the Jura and Vosges Mountains are part of the program.

Cost to the student is approximately $775 for tuition, textbooks, room and board for the six weeks, and the tours. Price does not include trans-Atlantic and independent travel and miscellaneous personal expenses. Contact: Professor S. S. Weiner, Department of French, Herter Hall.

Field Program in Anthropology, Europe

The Anthropology Department offers a field program in anthropology open to graduate and advanced undergraduate students in anthropology. Lasting for a period of either four or seven months, the course is designed to provide serious students preparing for careers in anthropology with an extended period of field research in Europe under the guidance of an experienced field worker.

Directorship of the program rotates among the faculty members of the departmental European Studies Committee. Location of the program in Europe in any given year depends upon who is directing the program. Participants select field sites in accordance with their interests and training, but within the country or group of countries designated by the director. Supervision of all field activities is provided by the director. All participants assemble periodically in a central location for short seminars, to discuss their problems and progress. A final seminar, during the last week of the program, is devoted to the presentation and evaluation of preliminary results.

The program is held each spring semester, with an option to extend the period of research through the summer available to selected participants.

Prerequisites for participation in the program include a working knowledge of the language required for field research, and prior course work in both field methods and in the culture area where research is to be conducted. Students interested in participation in the program should submit to the program director a proposal outlining the research they hope to accomplish. The proposal should be submitted during the fall preceding the spring in which the applicant wishes to participate in the program. A format for such a proposal, as well as additional information about the program, is available from the European Studies Committee, Anthropology Department, Machmer Hall.

A limited number of stipends is available to offset costs of international travel and maintenance while in the field.

Application Procedures for Admission and Readmission

Holders of bachelors' degrees, from this University or from other institutions having substantially the same requirements for the bachelor's degree, are eligible to apply for admission to a program of graduate studies. Admission is only for the semester requested and cannot be guaranteed for a later date. An application may be obtained by writing to the Graduate Admissions Office, Graduate Research Center, University of Massachusetts, Amherst, MA 01003. Applications for admission, complete with supporting documentation, must be sent in duplicate to the Graduate Admissions Office so as to be received by March 1 for September or Summer Session enrollment and by October 1 for January enrollment.

Applicants can be admitted to the Graduate School in one of the following categories:

Degree Status

Students admitted as fully qualified to undertake a program toward a graduate degree are termed degree status students.

Provisional Status

Students admitted on a probational basis to a program are on provisional status. Students may enroll for a maximum of 12 credits or two consecutive enrollment periods (including Summer Session), whichever comes first. This status may not be renewed beyond the credit/time limitation regulation as stated above. At the conclusion of the Provisional status period students are either admitted to Degree status or terminated depending upon the evaluation and recommendation by the graduate program and subject to the Graduate Dean's approval.

Non-Degree Status

Students who have a bachelor's degree and wish to take courses but do not intend to pursue a graduate degree are admitted on a limited basis for a period through the following Summer Session. Enrollment in any course is subject to the instructor's approval, and on a space-available basis. This status may be renewed upon completion of another application. Applications for this status do not require the supporting documentation specified above for Degree and Provisional status. Graduate credits earned under the Non-Degree status are normally not applicable toward a graduate degree at this University; however, up to six graduate credits may be applied toward a graduate degree if a student is later admitted to Degree status, and subject to the recommendation by the graduate program and approval by the Dean of the Graduate School.

Requirements for Admission

1. Completion of the application form, including the proof of residency statement.

2. Payment of the required Application Fee ($10, Massachusetts residents; $25, non-residents). Waivers of the fee are available *only* to those applicants who receive a waiver of the Graduate Record Examination or Graduate Management Admission Test fee through their undergraduate financial aid office. A certified statement from a college or university official attesting to receipt of the fee waiver must accompany the application.

3. A minimum undergraduate cumulative grade point average of 2.75 on a 4.0 grading scale.

4. A bachelor's degree or the equivalent from any college or university of recognized standing.

5. Two official transcripts of all previous college work (undergraduate and graduate). An applicant must request the registrar of all colleges previously attended to send two copies of the transcript directly to the Graduate Admissions Office. A final transcript showing that the bachelor's degree has been awarded must be received before the applicant can enroll in the Graduate School.

6. Two letters of recommendation from persons in the field of the applicant's academic major at the institution most recently attended. In some cases letters of recommendation from other persons may be more appropriate to the proposed field of study.

7. The Graduate Record Examination (GRE) Aptitude Test (required of all applicants, including foreign students). For a list of those graduate programs requiring a GRE Advanced Test refer to the Application Form. Only GRE scores taken within five years of requested enrollment will be considered as fulfilling this requirement. Applicants must have transcripts of their GRE scores sent directly to the Graduate Admissions Office. Applicants for Fall admission are urged to take the GRE at the preceding November testing or earlier. The results of later testing are frequently not avialable before decisions on admission must be made. The Educational Testing Service, Box 955, Princeton, NJ 08540, administers the test in the United States as well as abroad. Addresses of test centers may be obtained from that organization. On this campus the test is given by the Student Development Center.

Applicants for admission to programs in Business Administration, Sport Studies (Sports Management Option), and Hotel, Restaurant, and Travel Administration are required to take the Graduate Management Admissions Test (GMAT) rather than the GRE. This test is also administered by the Educational Testing Service.

8. For foreign student requirements see section entitled *Foreign Applicants.*

9. Applicants procedures for the Five-College Cooperative Ph.D. Program are listed in the section entitled *Doctoral Degree Requirements.*

10. Finally, recommendation of admission by the graduate program applied for and formal acceptance by the Dean of the Graduate School.

Readmission

A student or applicant who falls into one of these categories must reapply:

1. An applicant who has previously been admitted to the University but did not enroll on the entrance date stated in the acceptance letter;

2. A graduate student at this University who was accepted for one degree program and wishes to apply for another program or degree; and

3. A degree candidate who has not continuously enrolled in courses or paid the Program fee (see next section) must reapply and pay all associated fees.

Admission of Faculty and Staff Members to Graduate Study

A member of the faculty of the University with the rank of assistant professor or higher may not earn a graduate degree from the University; he or she, may, however, do graduate work on a non-degree basis. A full-time staff member of the University may not carry more than seven credits per semester. Tuition for the first four credits and all general fees are waived.

Foreign Applicants

A brochure entitled "Information for Prospective Students from Other Countries" giving detailed information of use to foreign students, is available from the Graduate Admissions Office. Foreign applicants must complete their application at least seven months prior to the registration date of the first semester of study.

The Test of English as a Foreign Language (TOEFL) is required of *all* applicants for admission to the Graduate School from countries whose native language is not English. Information about the examination may be obtained by writing:
Test of English as a Foreign Language
Educational Testing Service
Princeton, NJ 08540 U.S.A.

TOEFL may be waived if the applicant has attended an American college or university for a period of at least two academic years at the time the application is being considered. A score of 550 or above is *required* for admission. Students scoring between 500 and 549 who otherwise meet the requirements set by department may be admitted provided they agree to attend, at their own expense in the summer prior to admission, a summer institute in English (such as the program of the Experiment in International Living at Putney, Vermont). All non-native-speakers of English who are admitted will be tested by the University on arrival before registration, whether or not they have submitted TOEFL. Students scoring below the established minimum will be *required* to take further work in English. The program of study of graduate students taking remedial English work is subject to limitation by the Graduate School.

Foreign applicants are normally admitted only to *Degree Status* and for *full-time study.*

Application Fee

Residents of Massachusetts pay a $10 Application Fee; non-residents pay a $25 Application Fee.

Tuition

Graduate students pay tuition at the following (Fall 1978) rates: Residents of Massachusetts—$33.50 per credit hour up to $335 per semester; non-residents—$77.50 per credit hour up to $775 per semester.

In order to register as a Massachusetts resident, a student must have on file a Proof of Residency form properly authenticated by a notary public prior to the beginning of the semester.

Residents of other New England states may pay the resident tuition rate under the *New England Regional Student Program,* but only if admitted to a degree program at this University that is not available at their home state university's graduate school. Inquiries should be directed to the Graduate Admissions Office.

General Fees

(also see Medical-Surgical Insurance Section) Graduate students enrolled for five or more credit hours are assessed approximately $120 per semester. This General Fee includes such facilities and services as University Health Services, Fine Arts, Campus Center, I.D. Card, and Graduate Student Senate Tax. The General Fee is NOT optional.

Graduate students enrolled for fewer than five credit hours are assessed approximately $40 per semester. This fee includes an I.D. card, Graduate Student Senate Tax, and one-half of the Campus Center fee.

The Summer Session tuition charges and fees are stated in the Summer Session Course Catalog.

Tuition and Fee Change

Tuition and fees are subject to change and may be changed without prior notice.

Program Fee

Graduate students not enrolled for any course credits but who are candidates for a degree, must pay a Program Fee of $50 each semester (excluding summer terms) for continuous registration until the degree for which the student has been accepted has been formally awarded. Deadline for payment of this fee is one week after the first day of classes. If a student does not pay this fee but later seeks readmission or applies for graduation, he shall pay the accumulated Program Fees plus a readmission fee of $50. Students seeking readmission must file a written request, endorsed by the appropriate Department Head or Graduate Program Director, with the Graduate Dean.

Commencement Fee

There is a $10 Commencement Fee requisite for graduation. This fee must be paid by the time a student files for graduation.

Medical-Surgical Insurance

An optional medical-surgical insurance plan supplements the care received by students at the Infirmary. It provides hospital, medical, and surgical care on a twelve-month basis for illness or injuries received during the academic year as well as holidays, summer vacation, and other times when the student is off campus. Students who register for the Fall Semester have only one opportunity to enter or reject this program each year, at the time of payment of the Fall Semester bill. It is offered on the Spring Semester bill for new spring registrants only. The fee for medical-surgical insurance is approximately $60 per year. Married students desiring family coverage are advised to contact the University Health Services.

Student Finances

Students should arrive on campus with enough cash on hand to pay their tuition, fees, and insurance bills as well as room and board for at least one month after registration. Normally, this will be approximately $700. (Students receiving financial assistance from or through the University will not receive their first checks for approximately two to three weeks after registration.)

Waivers of Tuition

Graduate Assistants and Fellowship Recipients
Tuition is waived during the academic year for graduate teaching and research assistants and associates and for fellowship recipients, provided that the stipend is at least $900 per semester.

Full-Time State College and Community College Faculty
The Trustees of the University of Massachusetts have authorized waiver of tuition, *but not fees,* for faculty members of the Massachusetts State Colleges and Regional Community Colleges taking courses at the University of Massachusetts, providing the faculty members have been serving full-time before taking such courses and return to full-time teaching in their Community College after completion of course work. When a faculty member who is eligible for such a tuition waiver desires to take a course at the University, his or her College President should write a memorandum certifying that he/she is a full-time faculty member. Such faculty members must be accepted for admission by the Graduate School prior to any registration.

Full-time University Faculty and Staff Members
See section entitled Admission of Faculty and Staff Members to Graduate Study.

Foreign Students
Tuition may be waived for a number of foreign students up to a maximum of 10 percent of the foreign students in degree programs.

Vietnam Veterans
Tuition may be waived for any Vietnam veteran, as defined in the General Laws, whose service was credited to the Commonwealth. Any veteran eligible for this waiver is advised to contact the Veterans' Office, Whitmore Administration Building for further information.

Tuition and Fee Refunds

A student who leaves the University for any reason before a semester is completed, except as specified below, will be granted a pro rata refund of tuition and fees which applies for the first five weeks of the semester only. A student who makes an advance payment and then for any reason does not attend any part of the next semester or term at the University will be given full refund of tuition and fees. If academic credit is given, there will be no refund. A student who is suspended or expelled from the University for disciplinary reasons forfeits all rights to a refund.

Refunds are first applied to reimburse scholarships or loan funds (up to the full amount), and any remaining amount is refunded to the student.

Refund Schedule

Regular Term
a. Within the first two weeks from the beginning of semester or term— (Registration Day)—80% ($100 minimum charge)

Housing

b. During the third week—60%
c. During the fourth week—40%
d. During the fifth week—20%
e. After the fifth week—No refund

Summer Session
a. During the first week—60%
b. During the second week—20%
c. After the second week—no refund

Room Rent

The charge varies from $383 to $423 per semester depending upon the residential area. The telephone charge, where applicable, is about $25 per semester and is not optional.

Room Rent Refunds

Room rent refunds are granted on a pro rata basis which applies for the first five weeks of the semester, according to Trustee policy. No rent refunds are granted after five weeks.

Board

The cost for each semester is about $450 for 19 meals per week, $420 for 14 meels per week, or $370 for 10 meals per week, plus the 6% Commonwealth of Massachusetts Meals Tax. Food service will be available weekends on an individual purchase basis. Students may purchase individual meals on a cash basis.

Board Refunds

Authorized refunds will be made on a pro rata basis. A student who is suspended or expelled from the University for disciplinary reasons forfeits all rights to a refund.

On-Campus Housing

The University provides a limited amount of housing for single and married graduate students. Graduate students wishing to live on campus should contact the correct addresses below as early as possible to assure space will be available.

Single Student Housing

At present, one of the residence halls in the Southwest Residential College is reserved for use by unmarried graduate students. Prince House is a four story building containing three large social lounge areas, a recreation room, a television room, vending machines, study areas and a snack lounge. Student rooms are for double occupancy only. The terms of occupancy are as follows:

1. Space in the building will be assigned on a full semester basis only.

2. All single graduate students are admitted on a space available basis.

3. Room rent is commensurate with the charge for undergraduate residence halls. Graduate students do have the option of remaining in Prince House during the Intersession and Summer Vacation periods on a weekly rental basis. Fees are set prior to the beginning of each semester, and the University reserves the right to alter fees whenever necessary.

4. Graduate rooms at Prince House are assigned by the Housing Office, Whitmore Administration Building. Rooms will be reserved on a first-come, first-served basis. A permanent room assignment will not be made until the rent bill is paid in full. Students who cancel the assignment will be subject to a $100 minimum charge, per Trustee policy.

5. Upon acceptance to the Graduate School, the entering student will receive housing information and an application form. While every effort is made to comply with requests, the University reserves the right to make room assignments in accordance with existing vacancies. Early applications receive preference.

6. Residence halls rules and regulations require that occupants assume responsibility for damage in or to their rooms.

7. Hotplates and other equipment for preparing hot food are strictly prohibited in student rooms. A kitchenette is available in Prince House for cooking snacks or meals.

Family Housing

The University owns and manages 395 unfurnished apartments of various sizes at three convenient locations on or near campus. Married students or students with dependent children are eligible for these spaces. There is no priority waiting list. Assignments are made according to circumstances with regard to the number of current vacancies. The Family Housing Office attempts to fill the apartments as soon as possible. Those applicants willing to take immediate occupancy will be assigned first. Applicants who are unable to take immediate occupancy should stay in contact with the Family Housing Office. Pets are not allowed in Family Housing. Assignments are made with regard to family size as well as availability of space. Information regarding assignment procedures, apartment descriptions, and applications forms may be obtained from the Family Housing Office, Room 101, Berkshire House.

Off-Campus Housing

Since the availability of University housing is limited, many graduate students prefer to live off-campus. To assist you in finding housing the University maintains an Off-Campus Housing Office in Munson Hall, which disseminates information regarding all aspects of off-campus housing. Listings for apartments, houses and rooms are maintained there, and are updated daily. All arrangements for off-campus housing are the responsibility of the student. Information covering apartment complexes in the area may be obtained by mail, but all other information requires a personal visit. The housing market in Amherst is tight, so it is recommended that you make arrangements as early as possible.

Fellowships, Assistantships, and Teaching Associateships

University Fellowships

A limited number of unrestricted University Fellowships are awarded to graduate students on a University-wide basis by competition. They are intended to encourage and assist superior students in pursuing graduate study and in completing the requirements for graduate degrees in the minimum possible time.

The stipend is $3,300 for the academic year, payable in 4 quarterly installments from September through May. Fellowships provide for waiver of tuition, but not fees, and are not renewable beyond the second year. A recipient of a University fellowship must enroll as a full-time student.

Application can be made on forms supplied as part of the regular admissions material by the Graduate School of the University of Massachusetts. Completed applications must be submitted to the Graduate School for major department review before February 1 for the following September. Awards are announced by March 31. Applicants not currently enrolled in graduate study at the University must also have filed an application for admission to the Graduate School.

Federal Fellowships

The University participates in the various Federal fellowship programs sponsored by the National Science Foundation and the National Institutes of Health. Suitable applicants are recommended by the academic departments.

Other Fellowships

Direct fellowship awards are available from a number of foundations. Students may obtain information concerning these fellowships from the Graduate School.

Graduate Assistantships and Associateships

The University offers a number of graduate assistantships and associateships in the research and instructional programs of the various departments. Graduate assistants and associates are not required to pay tuition if their stipend is $900 or more for the semester. Application for a graduate assistantship is made to the Graduate Program Director in the department involved.

Research Assistantships

A number of research assistantships are available to qualified graduate students. These are made possible through funds provided by various industries, the Experiment Station, and research grants awarded to members of the Graduate Faculty either from sources outside the University or from funds provided by the University and administered by the Research Council. Stipends vary with the type of work and the amount of time involved, but are normally $3600 per academic year for a 20-hour per week research assignment.

Teaching Assistantships

Many departments offer teaching assistantships to qualified regularly enrolled graduate students. A teaching assistant is normally required to devote 20 hours per week in preparation and teaching. The stipend is normally $3600 per academic year.

Teaching Associateships

Superior achievement and ability among a limited number of teaching assistants is recognized and rewarded by promotion to the position of Teaching Associate. The stipend for teaching associates is normally $4000 per academic year.

Financial Aid

Graduate students who are enrolled in a degree program as full-time students (9 credits or more) may be eligible for the following programs.

Tuition Waivers

Authorized by the University Board of Trustees for in-state graduate students demonstrating financial need.

National Direct Student Loan (NDSL or NDL)

A Federal loan program designed to assist graduate students who have demonstrated financial need. The loans are automatically made by the Financial Aid Office as part of its overall packaging process (policy). The loans are repayable at 3% interest starting nine months after graduation or termination of college enrollment. Payments and interest are waived as long as the student remains in school.

College Work-Study Program (CWS)

A Federal work-study program designed to provide assistance to needy graduate students through earnings from employment. The awards are automatically made by the Financial Aid Office as part of its packaging policy. The Financial Aid Office arranges jobs on and off campus and the award must be earned through hourly employment. Students with work-study awards may work part-time while school is in session and full-time during intersession and summer. The amount of the award is a limit to be earned and is not a guarantee.

Guaranteed Student Loan Program (GSLP)

A Federally sponsored nationwide graduate student loan program with each state having its own administrative body. In Massachusetts, the program is administered by the Massachusetts Higher Education Assistance Corporation, more popularly known as the Higher Education Loan Program (HELP). This loan program is operated through banks and other private lending institutions and is designed to assist students who are found either ineligible or eligible for limited amounts of university financial aid. Payments on the loan fall due 9 months after graduation or termination of college enrollment. The annual interest rate (7%) will be paid by either the Federal government or the student during the school years depending on the student's and/or parent's annual income. In general, if the annual family income is $25,000 and under the loan is termed subsidized, i.e., the government pays the interest as long as the student remains enrolled. These loans are made by private lending institutions, not the University.

Application Process

Pick up financial aid packets from the Financial Aid Office in December for the forthcoming academic year. The following items are required:

1. The University Financial Aid Application: complete and file with the Financial Aid Office.
2. The Financial Aid Form (FAF) processed by the College Scholarship Service in Princeton, N.J. *The University does not use the GAPSFAS application form.*
3. Copy of parent's IRS Form 1040
4. Copy of student's IRS Form 1040 or 1040A.

The policies and practices of the University Financial Aid Office are based on Federal, state, and university rules and regulations all of which are founded on the concept of "need." Need is simply defined as the difference between the average cost of attending a college and the reasonable ability of the student and/or parents to meet that cost. In order to assure fairness and equity for all students and parents in assessing financial need, all colleges and universities subscribe to an independent agency which analyzes the financial status of the student and the parents on a uniform basis.

The application deadline is February 15 to ensure proper crediting for fall bills but applications are accepted on a continuous basis. Information and applications can be picked up in the Financial Aid Office, 243 Whitmore Administration Building, or by calling 413-545-0801.

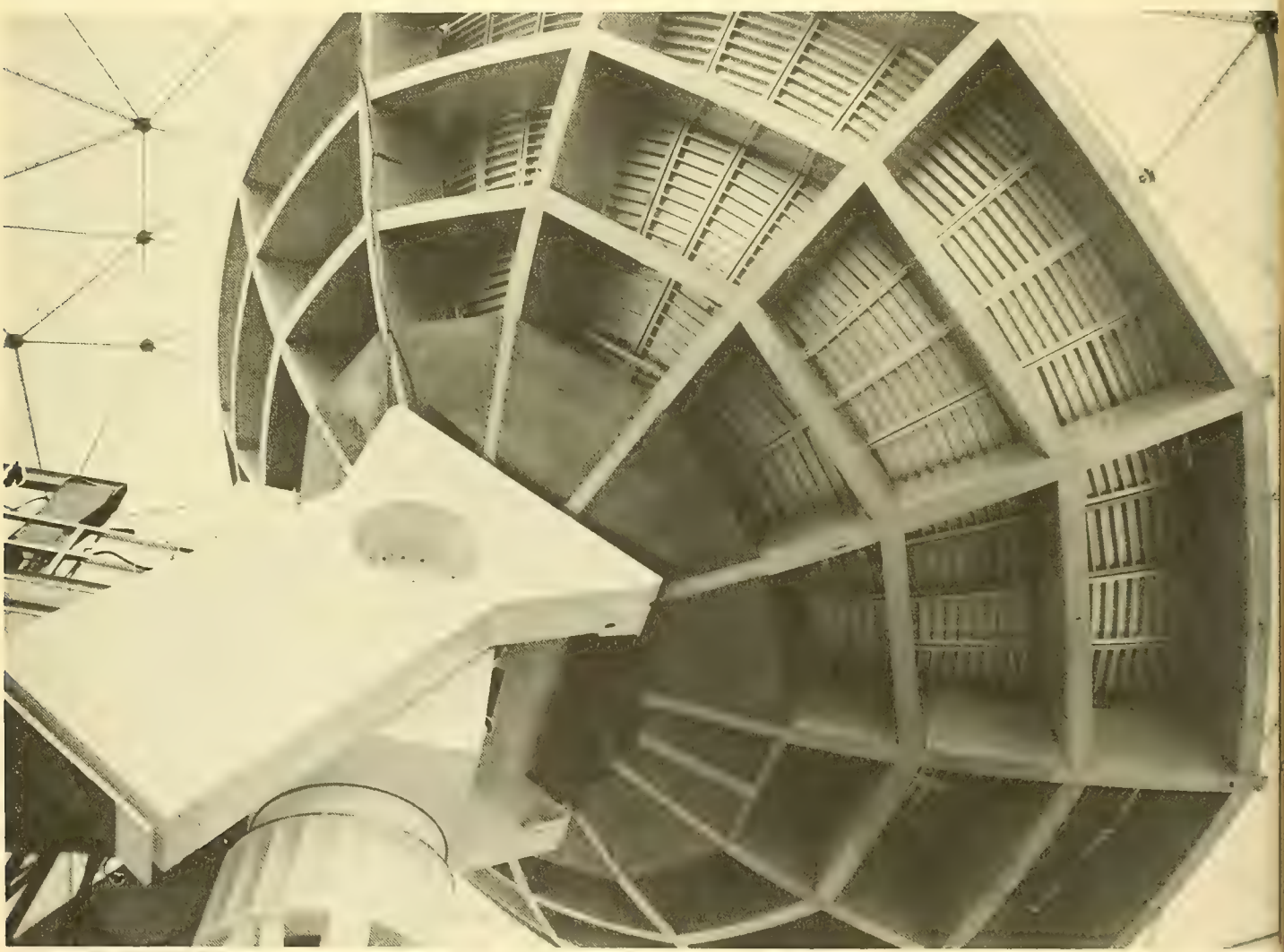
Non-Degree Graduate Students: Students classified as non-degree graduate, are not eligible for any type of aid provided by the Financial Aid Office. Non-degree students may be eligible to apply for a Federally insured student loan through a bank or other private lending institution if they are enrolled in a course, or courses, for purposes of teacher preparation, preparation for a full-time graduate program, personal enrichment, etc. The loan application must be accompanied by a statement of the reasons for the course(s) and a statement from the academic department stating number of credits and supporting the endeavor. The loan applications must be picked up at the bank or lending institution that participates in this Federal program.

Major Fields In Which Courses Are Offered Leading To The Degree Of Doctor Of Philosophy

Animal Science
Anthropology
Astronomy
Biochemistry
Botany
Business Administration
Chemical Engineering
Chemistry
Civil Engineering
Communication Disorders
Communication Studies
Comparative Literature
Computer and Information Science
Economics
Electrical and Computer Engineering
English
Entomology
Environmental Engineering
Exercise Science
Food and Agricultural Engineering
Food and Resource Economics
Food Science and Nutrition
Forestry and Wood Technology
French
Geology
Germanic Languages and Literatures
History
Industrial Engineering and Operations Research
Linguistics
Mathematics and Statistics
Mechanical Engineering
Microbiology
Philosophy
Physics
Plant Pathology
Plant and Soil Science
Political Science
Polymer Science and Engineering
Psychology
Sociology
Spanish
Sport Studies
Wildlife and Fisheries Biology
Zoology

In several fields, degrees are awarded under the Five-College Cooperative Ph.D. Program: All departments in the biological sciences; Astronomy, Chemistry, French, Geology, Germanic Languages and Literatures, Philosophy, and Physics.

See *Education* section for concentrations of study leading to the degree of Doctor of Education.



Division of Continuing Education

Major Fields In Which Courses Are Offered Leading To The Master's Degree

Animal Science
Anthropology
Art
Astronomy
Biochemistry
Botany
Business Administration
Chemical Engineering
Chemistry
Civil Engineering
Classics
Communication Disorders
Communication Studies
Comparative Literature
Computer and Information Science
Economics
Education
Electrical and Computer Engineering
English
Entomology
Environmental Engineering
Exercise Science
Food and Agricultural Engineering
Food and Resource Economics
Food Science and Nutrition
Forestry and Wood Technology
French
Geology
Germanic Languages and Literatures
History
Home Economics
Hotel, Restaurant and Travel Administration
Industrial Engineering and Operations Research
Labor Studies
Landscape Architecture
Linguistics
Manufacturing Engineering
Mathematics and Statistics
Mechanical Engineering
Microbiology
Music
Nursing
Philosophy
Physics
Plant and Soil Sciences
Plant Pathology
Political Science
Polymer Science and Engineering
Psychology
Public Administration
Public Health
Regional Planning
Slavic Languages and Literatures
Sociology
Spanish
Sport Studies
Theater
Wildlife and Fisheries Biology
Zoology

The Division of Continuing Education serves part-time students for whom traditional or formal programs of study are not feasible. Such students' needs are met through two basic channels: Academic Extension (graduate- and undergraduate-level credit programs) and Conference Services (a flexible noncredit schedule of conferences, institutes, workshops, and seminars). The Division's main offices are located in Hills House North.

Academic Extension includes the Evening Division and special programs for off-campus credit courses. Programs include such offerings as Project SELF, a women's program that is expanding beyond the Pioneer Valley in an attempt to provide continuing education to a vital sector of the Commonwealth's population.

Doctoral Degree Requirements

All requirements for any advanced degrees to be awarded at a given degree-granting period (February, May, September) must be completed by the appropriate deadline. The completed Eligibility for Degree forms must be submitted to the Graduate School by the specified deadline so that all the candidate's credentials can be certified before the degree is actually awarded. Refer to the *Guidelines for Doctoral Degree Candidates* for further detailed guidance in the preparation and completion of a program of study.

DOCTOR OF PHILOSOPHY AND DOCTOR OF EDUCATION

The departmental Graduate Program Director is responsible for the following, all within the guidelines of the Graduate School *and* the candidate's school/department graduate studies program:

a. Approving the candidate's program of courses.
b. Approving the procedure for satisfying the language requirements, if any.
c. Arranging for the candidate's preliminary comprehensive examination.
d. Reporting fulfillment of the above requirements to the Head/Chairman of the Department.

As soon as the student has passed his preliminary comprehensive examination, the Department Head/Chairman or Graduate Program Director of the candidate's major department* shall recommend to the Dean of the Graduate School the names of at least three members of the Graduate Faculty to serve as a Dissertation Committee. At least two of the Graduate Faculty so nominated shall be from the candidate's major department.* One member shall be appointed from outside the candidate's department.* The outside member shall, without exception, be a voting member of the Dissertation Committee.

It shall be the responsibility of the Dissertation Committee to approve the dissertation project, to supervise its execution, and to arrange for the final examination of the student. All members of the Dissertation Committee must tentatively approve the dissertation before the final oral examination is scheduled and agree that it is time for this examination to be held. Attendance at the final oral examination is open to all members of the candidate's major department and any member of the Graduate Faculty. However, only members of the Dissertation Committee may cast votes. A unanimous vote of the Dissertation Committee is required for the student to pass the final oral examination. If, at the final examination, two members of the Dissertation Committee cast negative votes, the candidate will be informed that he has not passed the examination. If there is but one negative vote, the degree will be held up pending action of the Graduate Council.

*Refers to administrative entity for which degree has been authorized (i.e., department, program, school, etc.).

The doctoral degree is conferred upon graduate students who have met the following requirements.:

1. Successful completion of all courses and projects specified by the advisor/guidance committee within the guidelines of the candidate's school/department graduate studies program.

2. Satisfactory completion of foreign language requirements under Graduate Council policy. (These requirements are listed in the departmental sections of this *Bulletin*.)

3. Passing a preliminary comprehensive examination conducted by the major department. If the student fails the comprehensive examination he may, at the discretion of the examining committee, be permitted a second and final examination.

4. Submission of an approved dissertation prospectus to the Graduate School at least seven months prior to the Final Oral Examination (defense of dissertation).

5. Preparation of a dissertation satisfactory to the Dissertation Committee and the Department Head/Chairman.

6. Passing a final (at least partly oral) examination conducted by the Dissertation Committee. This examination shall be primarily upon, but not necessarily limited to, the candidate's dissertation. This examination cannot be scheduled until all members of the Committee and the candidate's Department Chairman or Head (or his designee) have approved the dissertation.

7. Registration for the required number of dissertation credits (refer to the *General Regulations* section, item number 12).

8. A minimum of one academic year as a full-time graduate student in residence at the University. The residence year must consist of two consecutive semesters, either a fall-spring or a spring-fall sequence. In order to qualify for full-time status, a student must be enrolled for nine or more credits per semester, either in regular graduate courses or for Doctoral Dissertation credits (899)/or in some combination of both. To be in residence he must be physically present on the campus for some part of each week during

the semester (although he need not reside or be domiciled in the Amherst area); and he may not be employed on more than a one-half time basis during the semester, either within the University or outside it.

9. The Statute of Limitations (total time period in which to earn the Ph.D. or Ed.D.) is six calendar years from acceptance into the program, or four years if the student already has a master's degree in the same field. A part-time student may be granted an additional year upon petition to his or her graduate program director and approval by the Dean of the Graduate School.

FIVE-COLLEGE COOPERATIVE PH.D. PROGRAM

A cooperative Ph.D. program is offered by Amherst, Hampshire, Mount Holyoke and Smith Colleges, and the University of Massachusetts. The degree is awarded by this University, but in exceptional cases much of the work leading to it may be taken at one or another of the participating institutions. Departments authorized to offer the cooperative Ph.D. degree are: all departments in the biological sciences, Astronomy, Chemistry, French, Geology, Germanic Languages and Literatures, Philosophy, and Physics.

An applicant must apply for the Five-College Cooperative Ph.D. Program through the Graduate School of the University of Massachusetts. The applicant must then secure the approval of the appropriate academic department at the University. The application then will be forwarded to the appropriate Five-College institution for its evaluation. The letter of acceptance to the applicant is sent only by the Dean of the Graduate School of the University of Massachusetts, not by the other cooperating institution.

Registration for the Five-College Cooperative Ph.D. students is handled only through the Graduate School of the University of Massachusetts.

Degrees awarded in this program will be appropriately indicated on the diploma and the permanent record card.

All requirements for the Five-College Cooperative Ph.D. degree are similar to those for the Ph.D. degree at the University except for the residency requirement. Residence in this program will apply to the institution where the dissertation work is done.

The names of the Graduate Faculty at cooperating institutions are listed at the end of this *Bulletin*.

In addition to the other requirements of the Graduate School, a candidate for the degrees Doctor of Philosophy (Ph.D.) and Doctor of Education (Ed.D.) must complete an acceptable dissertation. The dissertation qualifies for acceptance when it satisfies the following criteria: 1) It should demonstrate the candidate's intellectual competence and maturity in the field of concentration; 2) It should make an original and valid contribution to human knowledge; 3) It should be an individual achievement and the product of independent research.

Although doctoral dissertations may result from a project involving collaboration of several scholars, the individual contribution of each doctoral candidate must be substantial, clearly identified, and separately presented. Length of the dissertation is governed by the nature of its subject matter.

The dissertation in its completed form will be judged largely upon the ability of the candidate to review and make critical use of the literature; to formulate a problem, plan a method of attack, and work systematically toward a solution; to summarize his material or data, and draw conclusions based thereon. Scholastic attainment in writing and presenting the results of the study will be crucial. The goal of the dissertation is to make a contribution to knowledge. It should be of publishable quality.

The following rules shall be adhered to in preparation and presentation of a dissertation:

1. The professor responsible for the direction of the student's research shall be the Chairman of the candidate's Dissertation Committee. Only members of the Graduate Faculty may be appointed to this committee.

2. It is the responsibility of the Chairman of the Dissertation Committee to arrange a conference with other members of the Committee and the candidate to discuss the research problem before approving the dissertation prospectus.

3. A copy of the candidate's dissertation prospectus must be signed by each member of the Dissertation Committee to indicate that the prospectus has been approved and that a conference with the candidate has been held. The signed copy of the prospectus shall then be sent to the Dean of the Graduate School, via the candidate's Graduate Program Director.

4. The Dissertation Committee is responsible for preparation of an acceptable dissertation. The dissertation must have the unanimous approval of this Committee and the approval of the Department Head or Chairman before arrangements are made for the final examination for the degree.

5. Because of the time required to give adequate consideration to the research, it is important that the dissertation be submitted to the Dissertation Committee not later than one month before the Graduate School degree granting deadlines.

6. Although different disciplines have distinctive research and presentation styles, the following recommendations should help achieve maximum uniformity:

6a. The MLA Style Sheet (revised edition) is the recommended standard. However, any school, college, or department may specify substitute standards agreed upon in that discipline.

6b. All typed copies of theses or dissertations must be on plain, white, quality rag paper, not less than 20-pound weight and 8-1/2 x 11" in size. This paper is available at the University Store; no substitutions may be made. All copies should be of this same weight and quality paper. (This can be arranged by supplying your copy service with the correct paper in sufficient quantity.) Margins to the left shall be 1-1/2 inches; margins to the right, one inch.

6c. Any method of reproducing duplicate copies that produces the required number of clear, neat, and permanent copies is acceptable.

6d. The form of doctoral dissertations must conform to the "Instructions for Typing Theses and Dissertations" which may be found in the *Guidelines for Doctoral Degree Candidates.*

6e. Since the Graduate School has every dissertation microfilmed, much attention must be paid to the finished form. Both the Dissertation Committee and the Graduate School must approve the final format and appearance.

The candidate shall submit to the Graduate School the *original* (or copy of comparable quality, subject to approval *before* presentation of completed copy by the Graduate Dean), and one copy of the dissertation. Both the original (after being microfilmed) and the copy will be sent to the Library for binding. The candidate shall submit a money order or a certified bank check of $8 made out to the Library Binding Trust Fund to cover binding costs. The original will be deposited in the central library as an archival copy. The copy will be located in either the central library or branch library, as appropriate, for circulation. Some departments require an additional bound copy for their own file. The candidate wishing to have other copies of his dissertation bound for departmental requirements or for his own purposes, is referred to the *Guidelines for Doctoral Degree Candidates.* The candidate must also provide an abstract of fewer than 600 words.

The microfilm fee of $40 covers microfilm publication of the dissertation by University Microfilms Library Services and the publication of the abstract by them in Dissertation Abstracts.

The microfilm fee covers the cost of copyright in the author's name. If the author does not wish to have the dissertation copyrighted the microfilm fee is $25. The dissertation will be cataloged in the Library of Congress and in the University of Massachusetts Library. Microfilm copies may be purchased from University Microfilms Library Services, Xerox Corporation, Ann Arbor, Michigan 48106. Publication by microfilm does not preclude the printing of the dissertation in whole or in part in a journal or as a monograph.

Master's Degree Requirements

n addition to the Master of Arts (M.A.) and Master of Science (M.S.) degrees, the University also offers the following master's degrees: *Master of Arts in Teaching (M.A.T.), Master of Business Administration (M.B.A.), Master of Science in Business Administration (M.S.B.A.), Master of Education (M.Ed.), *Master of Fine Arts (M.F.A.), Master of Landscape Architecture (M.L.A.), Master of Music (M.M.), Master of Regional Planning (M.R.P.), Master of Science in Chemical Engineering (M.S.Ch.E.), Master of Science in Civil Engineering (M.S.C.E.), Master of Science in Electrical and Computer Engineering (M.S.E.C.E.), Master of Science in Environmental Engineering (M.S.Envr.E.), Master of Science in Industrial Engineering and Operations Research (M.S.I.E.O.R.), Master of Science in Manufacturing Engineering (M.S.Manf.E.), Master of Science in Mechanical Engineering (M.S.M.E.), and Master of Public Administration (M.P.A.).

The basic requirements for the master's degrees are given below. Programs marked by asterisk above are described under headings below. Also consult the departmental sections for more detailed information. Refer to the *Guidelines for Master's Degree Candidates* for further detailed guidance in pursuing and completing a program of study.

A minimum of 30 graduate credits, of which not more than six of grade B or better may be transferred from other institutions with the consent of the candidate's major department and approval by the Graduate Dean. Twenty-one of the 30 credits must be in the major field. If a thesis is offered, at least six credits must be earned in 600-800 series courses (at this University); if a thesis is not offered, at least 12 credits must be earned in 600-800 series courses (at this University). A minimum of half the required credits for a Master's degree in each department must be on a letter graded basis; some or all of the remaining number of credit hours toward the degree may be on a pass/fail basis, subject to the approval of the student's department. The option as to which courses may be taken on a pass/fail basis rests with the department/school rather than with the individual candidate. Transfer credits cannot be used as part of the required component of one-half credits of letter grades. No more than 10 credits may be earned by means of a thesis.

The Statute of Limitations (total time period in which to earn the Master's degree) is three calendar years from acceptance into the program, or (four years for the M.F.A. degree). A part-time student may be granted an additional year upon petition to his or her Graduate Program Director and approval by the Dean of the Graduate School.

3. The thesis is optional with the school or department; if one is required, however, it shall be under the supervision of a Thesis Committee. This Committee shall consist of one or more members of the Graduate Faculty appointed by the Dean of the Graduate School upon recommendation of the Head or Chairman of the Department. The thesis must be approved by the Thesis Committee and the Department Chairman or Head.

The candidate must also pass a general examination, not necessarily limited to the thesis topic, to be conducted by an examining committee of at least three members of the Graduate Faculty. The recommendation of two of the three members of the Examining Committee shall be requisite to receiving the degree. If the candidate prepares a thesis, Special Problems courses shall be limited to six credits.

4. Candidates for the Ph.D. degree may apply for the master's degree when they have fulfilled the residence and course requirements for the doctorate and the master's degree, have passed any applicable language

examinations and have successfully completed the preliminary comprehensive examination for the Ph.D.

5. Foreign language requirements for the master's degree are optional with the school or department.

6. Course credits used for fulfilling the requirements for a master's degree may not be used for fulfilling requirements for any other master's degree at this University.

MASTER OF ARTS IN TEACHING

This program is primarily for those who do not have adequate academic preparation nor appropriate teaching experience—but who do hold a bachelor's degree—to become effective teachers either at the secondary school or community/junior college level. The M.A.T. program leads to a terminal degree combining professional aspects of the M.Ed. degree with the academic tradition of the M.S./M.A. degree. Thirty-nine credits are required for the secondary school option, and 45 credits for the community/junior college option. A maximum of nine graduate credits of grade B or better from another accredited institution may be applied toward the degree, upon recommendation by one of the participating departments (Art, Botany, Chemistry, Classics, English, French, German, Physics, Public Health, and Sport Studies) and approval by the Graduate Dean.

MASTER OF FINE ARTS

The Master of Fine Arts degree program is particularly designed for those interested in the creative aspects of the arts and may be obtained in the Department of Art for work in the visual arts, the Department of English for work in creative writing, or the Department of Theater for work in dramatic art. The basic requirements for the degree are:

1. Sixty credits at the graduate level. Not more than 6 credits may be transferred from other institutions upon recommendation of the department and approval of the Graduate School. While an interdisciplinary course of study may be arranged, the Art Department does not require that 12 credits be earned in courses outside the Art Department. No more than 18 credits may be earned for the thesis project.

2. The exact nature of the thesis project will be determined by the student's major adviser in conference with the student. It is to be understood that the student will produce a work in the creative arts. A written analysis of the work itself and of the procedures used in producing it will be required. The candidate will be asked to pass an examination in the major field in addition to presenting the thesis project publicly. Applicants to the Department of Art (Studio) must submit a portfolio of slides directly to the Director of the Graduate Program.

The requirements for the master's thesis ar the same as those for the doctoral disserta tion, listed above, with the following excep tions:

1. The Chairman or Head of the Depart ment shall submit nominations to the Grad uate Dean for a Thesis Committee. Thi Committee may consist of one, two, or thre members, all of whom must be members o the University of Massachusetts Graduat Faculty. After the Thesis Committee ha been appointed by the Graduate Dean, i shall review the candidate's proposed thesi outline. When accepted, all members shal sign a cover sheet indicating approval. Th thesis outline, with the cover sheet bearin the signatures of the Committee member and the date of the Thesis Committee' meeting with the candidate, will be forward ed to the Graduate Dean by the Graduat Program Director at least four months prio to the general Master's examination (or de fense of thesis).

2. The *original* (or copy of comparable qual ity, subject to approval *before* presentatio of completed copy by the Graduate Dean and one copy (both unbound) of the thesi are required. The candidate shall submit money order or a certified bank check of $ made out to the Library Binding Trust Fun to cover binding costs. The original will b deposited in the central library as an archiva copy; the copy will be placed in either th central library or branch library, as appro priate for circulation. Some departments re quire an additional copy of the thesis fo their own files. Refer to the *Guidelines fo Master's Degree Candidates* regarding hav ing additional copies bound.

3. The thesis must be submitted along wit the Eligibility for Degree form to the Grad uate School by the deadline for the appropri ate degree granting period.

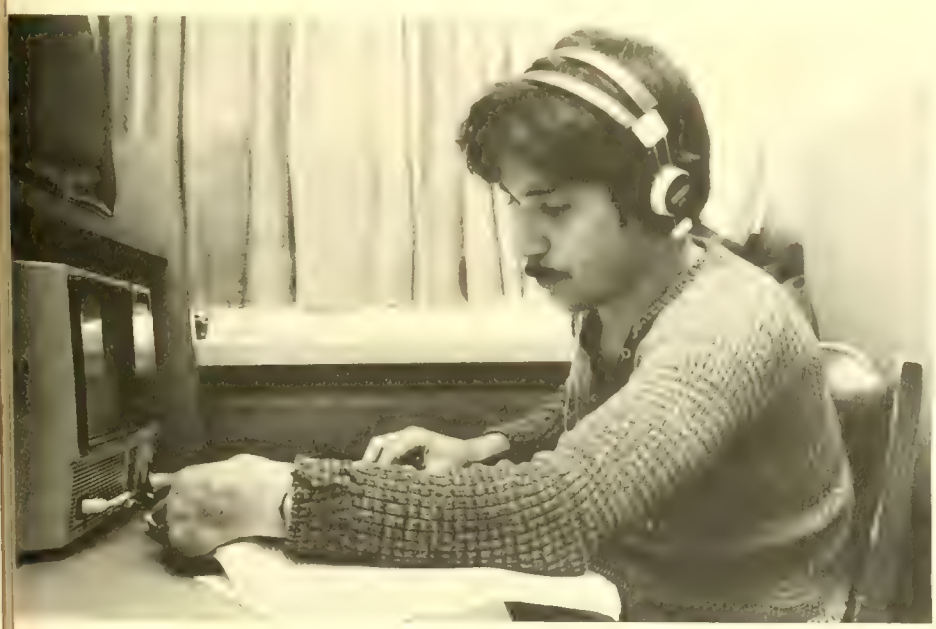
Foreign Language Examinations

Under Graduate Council policy, each academic program establishes foreign language requirements for its own advanced degree candidates. The program determines both the number of foreign languages and the level of competency required. A foreign language is defined for this requirement as a language other than the candidate's native tongue, in which there is a significant body of literature relevant to his or her academic discipline.

The levels of competency which a department may select are:

1. Advanced level.
2. Intermediate level.
3. Journal level: reading knowledge sufficient to understand journals in the language of the student's academic disciplines.
4. No foreign language competency.

A department may select any of these levels or combination of them for as many languages as it wishes. When a department selects levels one or two, the student's competency is judged by the score on the Graduate School Foreign Language Examination: The passing grade for advanced and intermediate levels is specified by the Graduate Council. Current passing levels are 600 and 450 respectively. The results are recorded on the student's transcript. When a department selects level three, the student's competency is decided by a departmental committee, but not by the Thesis or Dissertation Committee, and no entry is made on the student's permanent record card.



General Regulations

1. Course Numbering System at the University of Massachusetts (effective September 1977):

001-099 Noncredit
100-199 Introductory lower division (freshmen)
200-299 Other lower division (sophomore)
300-399 Upper division (junior/senior)
400-499 Upper division (junior/senior); graduate credit may be awarded only to candidates *outside* the department's own graduate program.
500-599 Combined graduate/undergraduate
600-699 Master's or first year graduate
700-899 Doctoral and advanced graduate
900-999 Post-terminal degree

Fixed Numbers (Graduate/Undergraduate)
590 Experimental courses
591-595 Seminars, variable titles
596 Independent study
597 Special topics, variable titles

Fixed Numbers (Graduate)
690, 790, 890 Experimental courses
691-695, 791-795, 891-895 Seminars, variable titles
696, 796, 896 Independent study, variable titles
697, 797, 897 Special topics, variable titles
698 Practicum
699 Master's thesis
899 Doctoral dissertation

2. "More Restrictive" Program Regulations

Any Graduate School regulation or procedure shall *not* preclude separate degree programs from developing specific regulations or procedures which are *more* restrictive or selective.

3. Re-taking Courses

Unless otherwise noted a course may be taken more than once but may be offered only once toward degree requirements.

4. Grading Policy

Only the following letter grades can be given to graduate students: A, AB, B, BC, C, F. These grades carry the following numerical equivalents for purposes of computing cumulative averages: A = 4.0, AB = 3.5, B = 3.0, BC = 2.5, C = 2.0, F = 0.

Graduate students enrolled in undergraduate courses are governed by the Graduate School grading policy.

5. Academic Dismissal

A student who in any two semesters, consecutive or otherwise, has semester averages of below 2.8 is subject to academic dismissal upon recommendation of the graduate program director to the Dean of the Graduate School.

6. Academic Average for Graduate Degrees

In the courses which a student is offering to satisfy degree requirements, a minimum standard for satisfactory work is a 3.0 average.

7. Satisfactory or Reasonable Progress

A student must make satisfactory or reasonable progress towards completion of a degree program within the Statute of Limitations for that degree. A student who is not making satisfactory or reasonable progress is subject to termination upon the recommendation of the graduate program to the Dean of the Graduate School.

8. Maximum Credit Load

A graduate student may register for up to 15 credits during the fall and spring semesters and nine credits during the Summer Session. Any student who wishes to register for more than the maximum credit load must secure written permission from the graduate program director in the major department and the Graduate Dean's approval.

9. Full/Part-Time Student Credits

Full-time students register for nine credits or more per semester. Part-time students register for eight credits or less per semester. Ph.D. and Ed.D. candidates may be considered full-time students regardless of the number of dissertation credits for which they register, when the major department certifies that they are working full-time on research.

10. Course Withdrawal Regulations

a. To add, drop, or change a course, students must obtain the written approval of the instructor concerned and their faculty adviser. Signed cards are to be filed with the Graduate Records Office.

b. Up to and including 10 academic days from the beginning of a semester a student may add, drop or change courses without penalty; that is, no entry will be made on the student's permanent record. *No courses may be added after this date.* Signed cards are to be filed with the Graduate Records Office.

c. After period (b) but within six calendar weeks after the beginning of a semester a student may drop courses with a grade of DR (DRop) provided approval is obtained from the instructor and the student's major adviser.

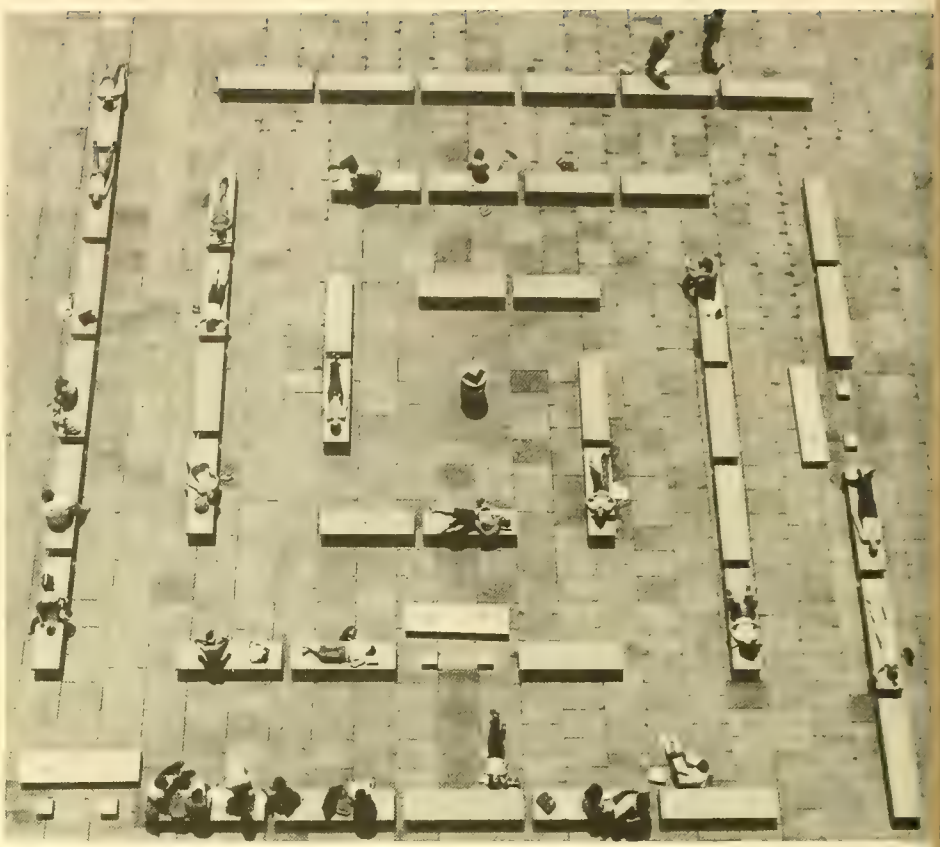
d. During periods (b) and (c) a student may withdraw from the University without academic penalty. Grades of DR will be noted on the record. After six weeks, grades of WF (Withdraw Failing) or WP (Withdraw Passing) will be entered unless special permission is obtained from the Dean of the Graduate School. No student may withdraw from courses after final examinations begin.

11. Incompletes

A student can obtain credit for an "incomplete" only by finishing the work of the course before the end of one calendar year from the time of enrollment in that course. At the end of that period, if a grade is not submitted an IF (Incomplete Failure) will be recorded. The initiative in arranging for the removal of an "incomplete" rests with the student. This regulation does not apply to thesis and dissertation credits.

12. Thesis and Dissertation Credits.

(Thesis 699 and Dissertation 899): The required number of thesis and dissertation credits varies by program. They range up to a maximum of 10 for masters' theses and from 10 to 27 for doctoral dissertations. No student is exempt from this requirement; normal tuition rates will apply. These credits will remain "incomplete" until the thesis or dissertation has been accepted by the Graduate School at which time these credits will be converted to SAT (satisfactory).



13. Transfer of Courses and Credits Taken Over and Above Credits Earned for a Bachelor's Degree

An undergraduate student in the senior year at any of the Five-College institutions who will earn during this year more credits than needed for the bachelor's degree, may register concurrently for graduate credits at the University of Massachusetts after securing the permission of the major adviser and of the graduate course instructor. The student registers for these credits with the undergraduate registrar. The Graduate School will accept a maximum of six credits earned via this method. After completing the courses, if the student wishes to tansfer them to a graduate program, the registrar should be requested to send to the Graduate School an official statement listing the courses, credits and grades, and certifying that they were over and above those needed by the student for the bachelor's degree. The graduate School will then record this information on permanent record card and supply the student with transcripts bearing this legend:

"Approval given (date) to transfer the following course(s) and credits, earned over and above credits required for the bachelor degree, toward the master's degree."

14. Academic Honesty Policy

It is the expressed policy of the University that every aspect of graduate academic life related in whatever fashion to the University shall be conducted in an absolutely and uncompromisingly honest manner by graduate students.

Apparent and alleged breaches in this policy will be dealt with by the Graduate Council of the University's Faculty Senate, and is enforced by the Dean of the Graduate School.

Special Services Available to Graduate Students

15. Administrative Withdrawal Policy

It is Graduate School policy that conditions warranting administrative (non-academic) withdrawal of a graduate student enrolled at the University's Amherst campus are the following:

a. failure to satisfy an overdue financial obligation to the University, consisting of any of, but strictly limited to (i) tuition, (ii) "general fees" (as defined in the Graduate School *Bulletin,* and including the Health Services Fee, Fine Arts Fee, Campus Center Fee, I.D. Card and Graduate Student Senate Tax), and (iii) educationally related loans out of the Financial Aid Office, except where explicit contractual arrangements are entered into.

b. failure to comply with prior conditions on admission to the University imposed by the Graduate School in compliance with University policies.

If withdrawn, a student shall cease to be enrolled and shall not receive credit or grades for the current semester. The student shall not be permitted to register for future semesters until reinstated. Reinstatement shall be automatic upon satisfactory resolution of the problem occasioning the withdrawal. Failure to resolve the withdrawal before the end of the Late Registration period of the succeeding semester shall entail application for readmission to the University. The student shall return all property belonging to the University in his or her possession at the time of withdrawal. The student shall receive no further materials or notification from the Graduate Registrar concerning University affairs.

16. Privacy of Educational Records

The Graduate School annually informs students of the Family Educational Rights and Privacy Act of 1974. This Act protects the privacy of educational records, established the right of students to inspect and review their education records, and provides guidelines for the correction of inaccurate or misleading data.

A document entitled *Family Education Rights and Privacy Act at the University of Massachusetts* explains in detail the procedures established by this institution for compliance with the provisions of the Act. A copy is available for inspection in the Graduate School.

Graduate Courses During The Summer

The University offers opportunity to pursue graduate studies during the summer. Details regarding courses offered, facilities for study, tuition and fees, etc. may be found in the Summer Session Bulletin, a copy of which may be obtained from the Graduate Admissions Office, Graduate Research Center, around April 15. The Summer Session provides a comprehensive Summer Activities Program, including film and concert series and an intramural program.

Division of Continuing Education

The Division of Continuing Education serves part-time students with both credit and credit-free programming. Methods of fulfilling this commitment include the Evening College (credit courses offered evenings and weekends, on and off campus), the Credit-Free Workshop Program, a variety of certificate programs in business, engineering, and other areas; the Arts Extension Service, the Technical Guidance Center, and community and human services programs.

Health Services

Comprehensive primary health care is provided to graduate students and their enrolled dependents through the University Health Services. The Health Services has been organized to help treat and prevent health problems which might limit the effectiveness of the college experience. It is mainly supported through direct fees and strives to be sensitive to member needs.

A staff of physicians, nurse practitioners and other health professionals work as a team to provide medical care at the Health Center for students, faculty, staff and their dependents. Services include unlimited staff consultation, and supporting services such as X-ray, laboratory, pharmacy and physical therapy. Specialty clinics include pediatrics, eye care, contraception and immunizations. The Health Center is also a hospital, should members need monitored care.

The Dental Health Division provides emergency dental care and dental education services. Routine and restorative care is provided on a fee-for-service basis as time permits. Because staff and facilities are limited, referrals may be made to a local dentist or family dentist for restorative care.

Also as a service under the health fee, social workers, clinical psychologists, and psychiatrists are available for short term one-to-one consultations. They also provide group therapy and couples consultation when appropriate.

Confidentiality is a very important policy; all visits are absolutely confidential. No one has access to records without the member's written permission unless a life-threatening situation occurs.

The Health Education Division offers a variety of programs aimed at developing individual and community responsibility for promoting optimal health. Programs include peer resource training, patient education, and community discussions on topics such as nutrition, first aid, parenting, sexuality and alcohol. The Environmental Health and

Safety Division provides continuous surveillance of various campus situations, such as housing, food services and fire and radiation protection.

In addition to these services, a supplemental health insurance program is made available to students and their dependents to cover hospitalization, delivery, and surgical services not available at the Health Center, as well as emergency treatment while away from campus. If you wish to enroll in this program you must do so in September. However, students entering the University in mid-year may enroll at that time.

This is only a brief overview of the University Health Services. Please call the Health Center Business Office (549-2671) for detailed information and instructions on how to enroll yourself or your dependents in the Basic Health Plan and the Supplementary Insurance program. Feel free to call if you have questions or special problems, or would like to get involved in any of its programs, including the Student Health Advisory Board.

Five-College Library Use

The libraries at Amherst, Smith, Hampshire and Mount Holyoke Colleges are normally available to students from the University of Massachusetts, subject to the rules and procedures set by each library.

Research Services

The glassblowing laboratory and microanalysis laboratory, located in the Graduate Research Center, support research projects and graduate education.

Placement Service

Vocational advising and assistance in finding employment through career and occupational information, on-campus interviews, the preparation of credentials, personal resumes and recommendations is offered to aid graduate students to attain their career objectives. The service is located in Hampshire House.

Post-Doctoral Fellows, Research Associates and Visiting Fellows

Post-Doctoral Fellows and Research Associates will be entitled to faculty privileges for the duration of their appointments at the University. Qualified scholars who desire temporarily the privileges of the library and research facilities of the University, and who are not candidates for a degree may be appointed as Visiting Fellows (without stipend) upon petition to the Dean of the Graduate School. Such Fellows may be entitled to faculty privileges. However, use of research facilities will have to be arranged on an individual basis with the chairman or head of the department in whose area the facilities are located.

Graduate Student Senate

The Graduate Student Senate serves as the representative body of graduate students at the University. It pursues policies and objectives that serve to advance the material and academic needs of the graduate community.

The Senate provides funding for various service organizations on campus, including Legal Services Office (LSO), Transit Service, Counseling Assistance for Older Students (CAOS), Off-Campus Housing Office, Student Center for Educational Research (SCER) and the Graduate Women's Program. In addition, the Senate considers applications for funding from many other groups throughout the year, and also provides funds, through a a revenue-sharing plan, for all departmental graduate student organizations that have representatives in the Senate.

The Graduate Student Senate also appoint representatives to numerous University-wid Committees, with service on most commit tees open to students interested in represen ting the viewpoints and interests of graduat students in matters such as the operations o the Campus Center, University Search Com mittees, the Health Council and man others.

For more information, contact the Graduat Student Senate, Room 919, Campus Center Tel. 545-2896

Non-Discrimination Policy

The University of Massachusetts at Amhers prohibits discrimination on the basis of race color, sex, age, religion, national origin o handicap in any aspect of its employment, i the recruitment, admission and treatment o students and in its policies and programs, a required by Federal and State laws an regulations. Inquiries concerning these law and regulations or their application shoul be addressed to the Office of the Affirmativ Action Coordinator, Chancellor's Office 375 Whitmore Building.

Before consulting the course descriptions listed in this section, students should become thoroughly familiar with the General Regulations governing registration for courses in the Graduate School. The regulations cover such matters as graduate credit, course numbering system, changing or dropping of courses, and requirements regarding incomplete work in a course. Students should also acquaint themselves with the requirements governing the particular degree which they wish to earn.

For description of courses numbered from 100 to 499, refer to the current Undergraduate Course and Faculty Directory of the University.

Graduate Faculty

Thomas W. Fox, *Professor and Head of the Department of Veterinary and Animal Sciences,* B.S., Massachusetts, 1949; M.S., 1950; Ph.D., Purdue, 1952.

J. Robert Smyth, Jr., *Professor and Graduate Program Director,* B.S., Maine, 1945; M.S., Purdue, 1947; Ph.D., 1949.

Donald L. Anderson, *Professor,* B.S., Massachusetts, 1950; M.S., Connecticut, 1952; Ph.D., Cornell, 1955.

Donald L. Black, *Professor,* B.S., Maine, 1954; M.S., Cornell, 1957; Ph.D., 1959.

Wallace G. Black, *Professor,* B.S., Wisconsin, 1948; M.S., 1949; Ph.D., 1952.

Anthony Borton, *Associate Professor,* A.B., Haverford, 1955; M.S., Michigan State, 1961; Ph.D., 1964.

Richard A. Damon, Jr., *Professor,* B.S., Masschusetts, 1947; M.S., Minnesota, 1949; Ph.D.,1951.

Robert T. Duby, *Assistant Professor,* B.S., Massachusetts, 1962; M.S., 1965; Ph.D., 1967.

Heinrich Fenner, *Associate Professor,* B.S., Agricultural College of Stuttgart-Hohenheim, 1951; Ph.D., 1956.

Stanley N. Gaunt, *Professor,* B.S., Rutgers, 1938; Ph.D., North Carolina State, 1955.

George R. Howe, *Associate Professor,* B.S., Vermont, 1957; M.S., Pennsylvania State, 1959; Ph.D., Massachusetts, 1961.

Sidney J. Lyford, Jr., *Associate Professor,* B.S., New Hampshire, 1958; M.S., North Carolina State, 1960; Ph.D., 1964.

James B. Marcum, *Associate Professor,* B.S., Missouri, 1960; M.S., Cornell, 1961; M.Div., Midwestern Baptist Theological Seminary, 1965; Ph.D., Missouri, 1969.

Martin Sevoian, *Professor,* B.S., Massachusetts, 1949; V.M.D., Pennsylvania, 1953; M.S., Cornell, 1954.

Glenn H. Snoeyenbos, *Professor,* D.V.M., Michigan State, 1945.

Olga M. Weinack, *Associate Professor,* B.A., Mount Holyoke, 1946; M.S., Massachusetts, 1950.

The graduate program in the animal sciences includes studies in mammalian and avian biology, with options in (a) genetics, (b) physiology, (c) nutrition, and (d) animal diseases. Students planning to major in any one of these fields must have a strong background in biology and chemistry or mathematics, o must be prepared to remedy undergraduat deficiencies without graduate credit. The op tion in animal diseases is designed primaril for veterinarians but is open to others with ap propriate academic training. Requirement for both the M.S. and Ph.D. degrees includ courses in the animal sciences offered by th department and courses in supporting area offered by such departments as Zoology Chemistry, Biochemistry, Microbiology, an Statistics. Available research material in cludes a number of domestic species. Th department requires no foreign languag reading competency for the doctoral degree

All courses carry 3 credits unless otherwis specified.

Genetics

714 Avian Genetics
The classical and physiological genetic of morphological traits of avian specie Emphasis on melanogenesis and charac teristics involving epidermal structure Permission of instructor required.
Mr. Smyt

715 Genetics of Productive Traits in Poultry
Lectures and reports on the genetics c productive traits in poultry, includin meat and egg production, fertility, em bryonic development and resistance t disease. Permission of instructor re quired. Mr. Smyt

716 Quantitative Inheritance and Selection
The principles of population genetic and quantitative inheritance as applie to selection for traits of economic impo tance in poultry; theoretical and prac tical considerations of breeding system Permission of instructor required.
Mr. Fo

717 Advanced Animal Genetics
Modern research in animal breedin with emphasis on the statistical ap proach. Includes development of selec tion indices for various farm animals, sir indices, and breeding plans based o systems of mating. Prerequisite, An Sc 412. Mr. Gaun

Physiology

512 Physiology of Reproduction
Comparative aspects of anatomy, em bryology, endocrinology, and physiolog of reproduction and lactation.
Credit, 4 Mr. W. G. Blac

724 Advanced Avian Physiology
Lectures and reports on specific problems in avian physiology. Permission of instructor required.
Mr. Anderson, Mr. Smyth

725 Mammalian Reproduction
An advanced course in the comparative approach to reproductive anatomy and endocrinology. Lectures and reports with theoretical and practical consideration of current research in laboratory and domestic animals, and in primates.
Mr. D. L. Black

726 Fertility and Fecundity
The effects of various environmental factors on fertility and fecundity of domestic and wild mammals and birds. Topics include the comparative effects of light, temperature, pesticides and nutrition on reproductive patterns and fertility control by natural and artificial means.
Mr. R.T. Duby

Nutrition

731 Applied Animal Nutrition
Relates basic nutritional principles to the establishment of nutritional requirements for growth, production and reproduction. Emphasis on laboratory animal experimentation and the summarizing, analyzing and interpretation of data in relation to current feeding standards. Permission of instructor required.
Mr. Anderson

734 Advanced Avian Nutrition
Lectures, reports, and discussions of significant research developments and theories in avian nutrition. Permission of instructor required. Mr. Anderson

735 Ruminant Nutrition
An advanced course in ruminant digestion and metabolism. Special topics selected and discussed in the light of recent and current research. Permission of the instructor required.
Mr. Fenner, Mr. Lyford

nimal Diseases

772 Wildlife Diseases
Survey of the major infectious diseases of wild mammals and birds, and the ecological factors controlling disease transmission. Permission of instructor required. Mr. Snoeyenbos

773 Avian Diseases
A survey, with emphasis on infectious diseases and their control. Lectures and demonstrations. Permission of instructor required. Mr. Snoeyenbos

774 Histopathology
Histological study of basic pathological processes. Permission of instructor required. Mr. Sevoian

Miscellaneous

661 Intermediate Biometry
Design of experiments in the biological sciences. Methods of analysis of such designs, including expectations of mean squares, selection of appropriate error terms, individual and multiple comparisons, and trend analyses. Prerequisite, introductory course in biometrics or statistics. Mr. Damon

662 Advanced Biometry
Analysis of data with disproportionate subclass numbers, including the method of fitting constants, the method of weighted squares of means, absorption of equations, expectations of mean squares, and tests of hypotheses. Prerequisite, An Sci 661. Mr. Damon

796 Independent Study
A specific problem in some aspect of animal science not related to the candidate's thesis.
Credit, 3-6.

699 Master's Thesis
Maximum credit, 10.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Donald A. Proulx, *Associate Professor and Chairman of the Department of Anthropology,* B.S., Wisconsin at Milwaukee, 1961; Ph.D., California at Berkeley, 1965.

Zdenek Salzmann, *Professor and Director of Graduate Studies,* M.A., Indiana, 1949; Ph.D., 1963.

George J. Armelagos, *Professor,* B.A., Michigan, 1958; M.A., Colorado, 1963; Ph.D., 1968.

John W. Cole, *Associate Professor,* B.A., Michigan, 1957; M.A., 1963; Ph.D., 1969.

Johnetta B. Cole, *Professor,* B.A., Oberlin College at Ohio, 1957; M.A., Northwestern Univ., 1959; Ph.D., 1967.

Dena Dincauze, *Associate Professor,* B.A., Barnard, 1956; Ph.D., Harvard, 1967.

Ralph Faulkingham, *Associate Professor,* B.A., Wheaton College, 1965; M.A., Michigan State, 1969; Ph.D., 1970.

Sylvia Helen Forman, *Assistant Professor,* B.A., California at Berkeley, 1968; M.A., 1969; Ph.D., 1972.

David H. Fortier, *Assistant Professor,* B.A., Columbia, 1949; M.A., 1953; Ph.D., 1964.

Thomas M. Fraser, Jr., *Professor,* A.B., Harvard, 1949; M.A., Columbia, 1958; Ph.D., 1963.

Laurie R. Godfrey, *Assistant Professor,* B.A., Tufts, 1967; M.A., Harvard, 1969; Ph.D., 1977.

Joel M. Halpern, *Professor,* B.A., Michigan, 1950; Ph.D., Columbia, 1956.

Alfred Bacon Hudson, *Associate Professor,* B.A., California at Berkeley, 1958; Ph.D., Cornell, 1967.

Harriet D. Lyons, *Assistant Professor* (Smith College), B.A., Barnard College, 1963; B.Litt., Oxford University, 1970.

Oriol Pi-Sunyer, *Professor,* B.A., Mexico City College, 1954; M.A., Harvard, 1957; Ph.D., 1962.

Doren L. Slade, *Visiting Assistant Professor,* B.A., George Washington University, 1966; Ph.D., Pittsburgh, 1973.

Alan C. Swedlund, *Associate Professor,* B.A., Colorado, 1966; Ph.D., 1970.

R. Brooke Thomas, *Associate Professor,* B.A., Pennsylvania State, 1963; Ph.D., 1972.

Kay B. Warren, *Assistant Professor,* (Mount Holyoke College), B.A., California at Santa Barbara, 1968; M.A., Princeton, 1970; Ph.D., 1974.

H. Martin Wobst, *Associate Professor,* B.A., Michigan, 1966; M.A., 1968; Ph.D., 1971.

Richard B. Woodbury, *Professor,* B.S., Harvard, 1939; M.A., 1942; Ph.D., 1949.

Students beginning graduate work in anthropology are expected to be conversant with the field as evidenced by successful completion of introductory course work in at least three of the four subfields of anthropology, plus at least two advanced undergraduate courses, in different subfields. Students admitted without this minimum of preparation will be expected to remove any deficiencies before being granted full graduate standing.

Students working toward the Master of Arts degree in Anthropology, in addition to fulfilling the general requirements of the Graduate School for the degree, must complete and be evaluated on a core program, normally comprising four to six specified courses, that has been worked out in consultation with the student's guidance committee. The core program is normally completed in the first two to three semesters of graduate work. Students who, at the completion of their core evaluation, are recommended as qualified to complete the M.A. degree, have two options, one requiring the writing of an M.A. thesis, the other not.

Students working toward the Doctor of Philosophy degree in Anthropology will, under the guidance of their committee members, prepare statements of field in three areas of specialization that reflect their career goals and intellectual interests. One of the statements of field normally represents a student's dissertation prospectus. After the completion and approval of the three statements of field, the student takes an oral Ph.D. Preliminary Comprehensive Examination, normally at the end of the fourth or fifth semester of graduate work. Upon successful completion of this examination, the student concentrates on the research that will provide the basis for a required dissertation. Normally, all candidates are expected to engage in fieldwork.

There is no general foreign language or tool of research requirement for degree qualification in anthropology. However, where the candidate's guidance committee deems the acquisition of certain relevant skills as necessary for the effective pursuit of his or her research and professional objectives, the student may be expected to develop satisfactory levels of competence in the use of various research tools and/or languages.

All courses carry 3 credits unless otherwise specified.

515 Primate Anatomy
Structure and phylogeny of primates (prosimian, monkey, and ape) with emphasis on evolutionary trends leading to man. Laboratory work provides experience in dissection. Mrs. Godfrey

522,523 Economic Anthropology I, II
The patterns of production, distribution and consumption in traditional societies, and the social and political matrices in which these occur. Alternative theoretical approaches to selected problems.

525 Archaeology and Law
Federal and state laws, regulations, and administrative procedures for protection of archaeological resources. Training for effective involvement in cultural resource conservation. Basic introduction to professional work in cultural resource management. Mrs. Dincauze

529 Archaeology of Northeastern North America
The prehistoric record of northeastern North America. (Penn. to Labrador). The initial peopling of the area and subsequent demographic and cultural growth, against back-ground of climatic and geomorphic changes of the past twelve thousand years. Major areal problems stressed over regional sequences. Mrs. Dincauze

560 Peoples of Europe: Eastern Europe and the U.S.S.R.
A survey of the peoples and cultures of Eastern Europe from prehistoric times to the present, stressing the role of peasantries and nomads with their changing ecological adaptations. Mr. Halpern

561 Peoples of Europe: The Western Mediterranean
A survey of the peoples and cultures of Mediterranean Western Europe. Emphasis on the historical span from the crystallization of distinct national cultures to the present. Mr. Pi-Sunyer

574 Cultures of the Far East
A survey of the culture-history and ethnography of representative peoples of East Asia; peasant subcultures traditional and contemporary Chin Japan, and Korea. Prerequisite, permi sion of instructor. Mr. Forti

577 Summer Field School in Archaeology
Practical training in archaeolog Prehistoric and Colonial sites will be e cavated and instruction given in archa ological methods and techniques. Prer quisite, Anthro 102 or equivalent. *Credit, 6.* Mrs. Dincau

578 Theory and Method in Archaeology
An intensive examination into the scien tific approach to modern archaeologic research and the utilization of this ap proach for deriving and testing theorie of prehistory and behavioral pattern Prerequisite, permission of instructor. Mr. Wob

582 History of Archaeology
Events, major sites, and men importar in the development of archaeology du ing the 19th and 20th centuries. Empha sis on theoretical and technical advance related to the present state of archae logy. Mrs. Dincauz

621 Prehistoric Cultural Ecology
Analysis of cultural ecology approache to the interpretation of the prehistori record. Prerequisite, permission of ir structor. Mr. Wob

622 Archaeology of the Southwest
Examination of selected problems i methodology and interpretation of th prehistory of the American Southwes May be repeated once for credit. Mr. Woodbur

625 Andean Archaeology
Selected problems in excavation, anal sis, and interpretation of Andean prehi tory. Emphasis on the later stages of d velopment of native American civiliz tions. Mr. Proul

641,642 Theory and Method in Social Anthropology I,II
A two-semester sequence devoted t structural functional analysis as devel ped in British social anthropology. Em phasis on method in the analysis of soci and political theoretical issues. *Credit, 6 (3 each)* Mr. Faulkingha

649 European Prehistory
Analysis of the prehistoric cultures of Eu rope to the end of the Iron Age. Cultur evolution, and long range trends in n

tural and cultural adaptation emphasized. Prerequisite, permission of instructor. Mr. Wobst

660 **Seminar in European Anthropology**
Particular attention to problems resulting from students' field investigations in Europe.

664 **Problems in Anthropology**
Current anthropological thought in regard to specific problems chosen from physical anthropology, archaeology, and cultural anthropology. Prerequisite, permission of instructor.

670 **Problems in North American Archaeology**
Selected problems in North American archaeology, emphasizing the anthropological interpretation of prehistoric data.
Mr. Woodbury, Mrs. Dincauze

680 **Field Course in Cultural Anthropology**
A field course for advanced undergraduates and graduates. Supervised training in cultural anthropological research. Location varies from year to year.
Credit, 6.

681 **Quantitative Methods in Anthropology**
Interpretation and analysis of data from all fields of anthropology. Descriptive statistics, formulation and testing of hypotheses, correlation and regression. Current trends in the methodology of anthropological research.

683 **Contemporary Anthropological Theory**
A seminar analyzing selected problems in contemporary anthropological theory. Emphasis on the structural approaches of the British and French schools.

699 **Master's Thesis**
Credit, 6-9.

712 **Seminar in Social Biology**
The interaction of the social, biological, and ecological factors involved in various aspects of human biological and cultural diversity.

717 **The History of Anthropological Theory**
The origin and development of anthropological theory, cultural evolution, culture history, and cultural dynamics with a primary focus on trends in American anthropology up to mid-twentieth century. Mr. Fortier

729 **Seminar: Comparative Social Systems**
Individual study and discussion of types of social systems in non-literate and peasant societies; consideration of relevant anthropological theory.

740 **Anthropology and Development**
Tribal and traditional economic systems and the process of economic technological change. Emphasis on current problems of modernizing nations.
Mr. Pi-Sunyer

745 **Revolution and Social Change**
Drastic social and cultural change. Emphasis on the historical background and social contexts of political revolutions and their role in modernizing nations.
Mr. Halpern

748 **Language and Culture**
Linguistic prehistory and classification; methods and interpretations of comparative linguistic analysis; linguistic methodology and "ethnoscientific" approaches; the "Whorf hypothesis" and linguistic relativity. Mr. Hudson

750 **Seminar in Comparative Symbol Systems**
Current theory and analytic method in the symbolic analysis of socio-cultural systems.

761 **Anthropology of Communication**
Various communicative codes, from a biological and socio-cultural viewpoint.
Mr. Salzmann

762 **Linguistic Anthropology: The Social Dimension**
A seminar examining the phenomena, methods of investigation, and interpretation of the social correlates of linguistic usage and variability. Mr. Hudson

765 **Problems in Far Eastern Anthropology**
Detailed consideration of selected, important anthropological problems and controversies in dealing with cultural and anthropological data from the Far East. China is emphasized. Mr. Fortier

767 **Southeast Asian Anthropology**
Selected problems in Southeast Asian anthropology, such as relations between hill and valley cultures, education, economic development, and minority group problems. Major attention to the mainland.
Mr. Fraser, Mr. Halpern

775 **Methods in Anthropological Research**
Methods of studying cultures of homogeneous and heterogeneous societies among primitive and modern peoples; emphasis on the various techniques of field work.

780 **Physical Anthropology: The Skeleton**
The human skeleton considered in its functional aspects and with reference to evolution, age, and sex. Methods of osteological investigations and osteometrics.
Mr. Armelagos

782 **Physical Anthropology of the Living**
Techniques and applications of physical anthropology among living persons. Anthropometry, somatotyping, serology, and other descriptive methods; elements of statistical analysis. Body form and function in relation to individual constitution and racial variation.
Mr. Armelagos

783 **Seminar in Biological Anthropology**
Advanced treatment of topics such as anthropological genetics, behavior genetics, growth and development adaptation.

784 **Human Adaptability**
Seminar dealing with the mechanisms of human adaptation to environmental stress; emphasis on human variation. Cultural as well as biological modes of adaptation. Prerequisite, Anthro 372 or permission of instructor.

802 **Research in Archaeology**
Directed individual research in archaeology.
Credit, 1-12.

803 **Research in Physical Anthropology**
Directed individual research in physical anthropology.
Credit, 1-12.

804 **Research in Cultural Anthropology**
Directed individual research in cultural anthropology.
Credit, 1-12.

805 **Research in Linguistic Anthropology**
Directed individual research in linguistic anthropology.
Credit, 1-12.

899 **Doctoral Dissertation**
Credit, 10.

Graduate Faculty

George Wardlaw—*Painter—Professor and Chairman of the Department of Art,* B.F.A., Memphis Academy of Arts, 1951; M.F.A., University of Mississippi, 1954.

Dale Schleappi—*Sculptor—Associate Professor and Graduate Program Director,* B.F.A., Pratt Institute, 1959; M.F.A., 1960.

Frederick Becker—*Printmaker—Professor,* Otis Art Institute, Los Angeles; Diploma, Beaux Arts Institute of Design, N.Y.C., 1936. Guggenheim Fellowship, 1957.

Jack L. Benson—*Archaeologist, Art Historian—Professor,* B.A., University of Missouri, 1941; M.A., University of Indiana, 1947; Ph.D., University of Basel, 1952.

Paul E. Berube—*Ceramist—Associate Professor,* B.A., Bowdoin, 1959; B.F.A., Rhode Island School of Design, 1961; M.F.A., Southern California, 1962.

Eleese V. Brown—*Art Educator—Associate Professor,* B.S., University of New Hampshire, 1963; M.A., University of Illinois, 1967; Ed.D., 1971.

Iris H. Cheney—*Art Historian—Associate Professor,* B.A., Wellesley, 1950; M.A., 1951; Ph.D., Institute of Fine Arts, N.Y.U., 1963.

John J. Coughlin—*Printmaker— Professor,* B.F.A., Rhode Island School of Design, 1954; M.S., 1961.

Hanlyn Davies—*Painter—Associate Professor,* N.D.D., Swansea College of Art and University of Wales, 1963; A.T.D., 1964; M.F.A., Yale, 1966.

Walter B. Denny—*Art Historian—Associate Professor,* B.A., Oberlin, 1964; M.A., Harvard, 1964; Ph.D., 1970.

Arnold Friedmann—*Designer—Professor,* B.F.A., Pratt Institute, 1953; M.S., Pratt Institute and New York University, 1960; Ph.D., Union Graduate School, 1976.

Leonel Gongora—*Painter—Professor,* Diploma in Art, Washington University, 1956.

John Grillo—*Painter—Professor,* Hartford School of Fine Arts, 1935-38; with Hans Hoffman, 1948-51.

Craig Harbison—*Art Historian—Assistant Professor,* B.A., Oberlin, 1966; M.F.A., Princeton, 1969; Ph.D., 1972.

James Hendricks—*Painter—Associate Professor,* B.A., University of Arkansas, 1962; M.F.A., State University of Iowa, 1964.

Martha J. Hoppin—*Art Historian— Assistant Professor,* B.A., University of Michigan, 1965; M.A., Harvard, 1966; Ph.D., 1974.

Walter Kamys—*Painter—Professor,* Diploma in Art, Chicago Art Institute, 1943.

Jerry Kearns—*Sculptor—Associate Professor,* B.A., California at Santa Barbara, 1966; M.F.A., 1968.

Terry Krumm,—*Art Educator—Associate Professor,* B.F.A., University of Denver, 1957; M.A., Hunter College, 1961; Ed.D., Massachusetts, 1972.

Robert W. Mallary—*Sculptor—Professor,* Guggenheim Fellowship, 1964-65.

Joseph McGee—*Designer—Associate Professor,* B.S., Philadelphia College of Art, 1962.

Anne Mochon—*Art Historian—Assistant Professor,* B.A., Vassar, 1964; Ph.D., Yale, 1973.

Mary S. North—*Sculptor—Assistant Professor,* B.A., University of Kentucky, 1972; M.A., Wisconsin at Madison, 1976; M.F.A., 1976.

Paul F. Norton—*Art Historian—Professor,* B.A., Oberlin, 1938; M.F.A., Princeton, 1947; Ph.D., 1952.

Susan E. Parks—Ceramist—*Assistant Professor,* B.A., Mount Holyoke College, 1964; M.F.A., Massachusetts, 1968.

Herbert S. Paston,—*Designer—Associate Professor,* B.F.A., Philadelphia College of Arts, 1952; M.A., Columbia, 1956; Ph.D., 1970.

William J. Patterson—*Printmaker—Associate Professor,* B.F.A., Hartford Art School of University of Hartford, 1964; M.F.A., Syracuse University School of Art, 1969.

Lyle N. Perkins—*Ceramist—Professor,* B.F.A., Alfred University, 1939; M.F.A., 1947; Ph.D., Ohio State, 1956.

Norman P. Phillips—*Sculptor—Lecturer,* B.F.A., Massachusetts, 1972; M.F.A., 1974.

Carleton L. Reed—*Art Educator—Professor,* B.S., New York University, 1941; M.A., Columbia, 1954; D.Ed., New York University, 1964.

Rosanne Retz,—*Printmaker—Assistant Professor,* B.A., State University of New York at Albany, 1973; M.A., 1974; M.F.A., Southern Illinois at Edwardsville, 1977.

Mark W. Roskill—*Art Historian—Professor,* B.A., Trinity College, Cambridge, 1956; M.A., Harvard, 1957; M.F.A., Ph.D., Princeton, 1961.

John A. Roy—*Painter—Professor,* B.F.A., Yale, 1957; M.F.A., 1957.

Nelson Stevens, *Associate Professor of Afro American Studies, and Adjunct Associate Professor,* B.F.A., Ohio University, 1962; M.F.A., Kent State, 1969.

John F. Townsend—*Sculptor—Professor,* B.S., Carroll College, 1951; M.F.A., University of Minnesota, 1959.

Hui-Ming Wang—*Painter—Professor,* B.A., University of Missouri, 1949; M.A., New York University, 1953.

James L. Wozniak—*Ceramist—Professor,* B.S., University of Wisconsin, 1954; M.S., 1955; M.F.A., 1958.

MASTER OF ARTS IN ART HISTORY

The degree of Master of Arts in Art History is offered upon the successful completion of 3 credits and the qualifying examination. These consist of a comprehensive examination, an examination or publishable paper in the field of special concentration, and an oral examination. Some courses may be taken for graduate credit at Amherst, Hampshire, Mount Holyoke, and Smith Colleges. Most students require two years to complete the degree. For further information write to the Graduate Program Director in Art History, Bartlett Hall, University of Massachusetts, Amherst, MA 01003.

MASTER OF ARTS IN TEACHING

The Art Department offers a Master of Arts in Teaching (M.A.T.) Program in Art Education, designed for candidates who have completed an undergraduate degree in fine arts or liberal arts and who wish to prepare for teaching in elementary or secondary schools. Applicants who have already been certified as teachers are also considered. These students have an opportunity to gain experience in a supervisory capacity. Enrollment is limited to a small number of highly qualified candidates who have evidenced interest and success in working with young people. A minimum of 3 credits is required for graduation: 21 credits in studio art, art history and related areas and 18 credits in the professional educatio

area (nine credits of education courses and nine credits Student Teaching Practicum and Practicum Seminar). Students who have an adequate spread of studio experiences as undergraduates may concentrate on one or two studio areas. The program can be completed in three semesters, or during one academic year and two summers. A slide portfolio is required of all applicants.

Students take courses offered on the graduate level at Amherst, Hampshire, Mount Holyoke and Smith College.

Applications should be obtained from and returned to the Graduate Admissions Office. 35mm slides of recent art work should be sent directly to the Director of the MAT Program, Art Department, Fine Arts Center.

Graduate Record Exams are required of all graduate school applicants.

MASTER OF FINE ARTS IN ART

This degree program is designed for students who are committed to becoming professional artists and who want an intensive two-year, 60-hour, in residence preparation for careers in art. There are four principal areas of study: painting, printmaking, ceramics, and sculpture. An applicant must select and qualify in one of these areas. The thesis (required) consists of a one-person exhibition supported by a written statement and other documentation, including a slide of each work in the exhibition. The candidate must also make an oral defense of the thesis.

Thirty-three to 36 credit hours are required in the major; 12-18 of these are thesis credits. Any credits over the 36 limit cannot be counted toward the M.F.A. degree in Art. The remaining 24 to 27 hours, taken in other areas and art history constitute the minor. In some instances, if the department chairman approves, an interdisciplinary course of study may be arranged, providing that it is consistent with the student's background and goals. 6 to 18 hours of work may be taken as special problems.

Full enrollment is necessary to assure continuity in the program. The number of graduate students that can be accepted into the studio program each fall is limited. Often places are filled by March 1. Therefore, application should be made early. Only those applicants who can clearly demonstrate their ability to work at a professional level need apply. There are a few openings for qualified Non-Degree candidates, but admission to courses is on a space available basis, as degree candidates are given preference.

The normal requirements for admission to the Graduate School apply except that applicants to the M.F.A. program must also submit a portfolio of slides of their work. The portfolio is the primary criterion for selection.

Application forms should be obtained from and returned to the Graduate Admissions Office by March 1. Slides should be submitted separately to the Director of the Graduate Program, Art Department, Fine Arts Center, University of Massachusetts, Amherst, MA 01003.

All 35mm color transparencies *must* be submitted in 9" X 11" clear plastic viewing sheets. There must be at least 10 slides of work from the major area. In addition, slides allied to the major direction should be included. Each slide must be labeled with name of artist, date, size, and medium. Slides of rejected candidates will be returned by April 15. Slides of accepted candidates, including those on waiting list status, will be retained by the department until admission procedures have been completed.

MASTER OF SCIENCE IN DESIGN

A program in professional design is offered, with emphasis on interior/environmental design and related research. The two-year program is designed to provide professional education to candidates whose undergraduate background is in Art. Candidates who have a strong architectural and/or design background are encouraged to develop special interests and research. The program is interdisciplinary, encouraging work in landscape architecture, art, psychology and other related fields available at the University. A thesis project is required.

The Design Area was established as a unit of the Art Department with a strong interdisciplinary orientation, relating to the Department of Landscape Architecture and Regional Planning and other pertinent units within the University. Several faculty members hold cross appointments between the Design Area of the Art Department and the Department of Landscape Architecture and Regional Planning. The program has two goals at present:

1. To provide professional education in design for students who have had a general education in liberal arts with minor emphasis in art, design, or architecture. It is designed to permit the development of individualized professional programs in design, interior/environmental design, furniture design, exhibition design, and in general the professional aspects of environmental design-related fields.

2. To provide graduates with strong background in art, design and related fields with the opportunity to develop research, specialized development and interdisciplinary work. It also provides an opportunity to qualified candidates with a professional design background to prepare for a career in teaching interior/environmental design on the college level.

Admissions
Candidates must meet all requirements of the Graduate School. A portfolio must be submitted to be evaluated by a special graduate admissions committee for the Design Area. Portfolio work must be submitted in the form of 35mm color slides and *must* be in a plastic viewing sheet. Applications and other supporting documents should be sent to the Graduate Admissions Office, Graduate Research Center and the slides should be sent directly to the Art Department. The Graduate Record Exam is required of all applicants.

Deadline dates:
for the Summer/Fall-March 1
for the Spring-October 1

Requirements
The M.S. degree in Art (Design) requires candidates to complete from 36 to 45 credits, depending upon their background and area of specialization. A thesis project of up to 10 credits is part of the total credit requirement.

Transfer credit: up to six graduate credits may be transferred from other institutions upon the recommendation of the Director of the Graduate Program in Design.

Undergraduate deficiencies: A student may be accepted into the program with the stipulation that a specified number of undergraduate courses must be completed as a prerequisite for graduate work. Such courses are not counted for graduate credit.

Thesis and Thesis Committee
A thesis is required in the final semester of graduate work. The design thesis may be a creative project, (design, planning, three-dimensional work, etc.) supported by written documentation, or a combination of research, written and graphic material.

A total of three copies of the thesis project must be prepared by the candidate for the University. Drawings and plans must be incorporated into a bound thesis in the form of

photographs. At the time of the thesis presentation, candidates must be prepared for an oral examination (defense) concerning their thesis project.

A thesis committee consisting of a chairperson and a minimum of two or a maximum of three *graduate* faculty members must be constituted for a thesis.

All courses carry 3 credits unless otherwise specified.

Creative Art

501 Advanced Drawing
Investigation and development of various techniques and media. Emphasis on figure drawing. Six studio hours.

502 Advanced Drawing Problems
Advanced work in traditional and contemporary drawing media. Independent exploration of graphic problems. Solutions to problems sought in relation to student's personal objectives. Six studio hours.

510 Art Education: Methods and Materials I
Methods, tools, and materials used in the public school art program, with special emphasis on the elementary school level. Required for art education majors and a prerequisite for student teaching. Six studio hours.

512 Art Education: Methods and Materials II
The literature, philosophies, procedures, and methods used in the teaching of art. Emphasis on the secondary school program. Required for art education majors and a prerequisite for student teaching.

520 Painting I
Easel painting in oil and related media, based on elementary understanding of physical properties of medium, and encouraging individual directions within limitations of sound composition. Six studio hours.

521 Painting II
Initial concentration on transparent water color, emphasizing control of techniques and mastery of color relationships. Further experience with opaque water color, such as gouache, casein. Six studio hours.

522 Painting III
Continuation of Art 520. Six studio hours.

523 Painting IV
Advanced work in traditional and contemporary painting techniques and media. Includes encaustic, tempera, oil, oil-resin, acrylic polymer, synthetic media, grounds and supports. Six studio hours. Prerequisites, Art 521, 522.

540 Printmaking: Relief I
Techniques and aesthetic considerations of the woodblock print and related media. Emphasis on drawing and on understanding technical procedures. Six studio hours.

541 Printmaking: Intaglio I
Techniques and aesthetic considerations of etching, engraving, aquatint, and related media. Emphasis on drawing and on understanding technical procedures. Six studio hours.

542 Printmaking: Lithography I
Techniques and aesthetic considerations of making lithographs. Emphasis on drawing and on understanding technical procedures. Six studio hours.

545 Typography I
A studio course in typography and book design. The student selects a text, sets it in type, prints and binds at least one copy of the finished book. Six studio hours.

550 Interior Design III
A follow-up of Interior Design I and II. Lectures concerned with the visual and physical environment; problems which stress the function and responsibility of the interior designer. Studio sessions involve both individual and group projects relative to the planning of contract interiors. Environmental problems relating to space planning, human engineering, lighting and economy in the use of space and material.

557 Architectural Design I
Introduction to architectural design. Students design various buildings from assigned programs. The instructor acts as critic. Students make final presentation to jury consisting of other instructors and professionals. Prerequisites: design background and/or permission of in structor.

558 Applied Design
An advanced course. Elements and principles of design are employed to solve a series of specific design problems. A variety of media required. 5 studio hours, 1 lecture hour.

560 Sculpture I
Experimentation with materials. Investi gation into the nature of three-dimen sional order. Individual projects. Six stu dio hours.

561 Sculpture II
Continuation of Art 560. Six studi hours.

562 Sculpture III
A sequence of problems in direct an cast-metal sculpture, using a variety c metals, techniques, and processes. Em phasizes traditional and modern foundr methods, and includes gas and electri welding. Prerequisite, Art 561 (previous ly or concurrently). Six studio hours.

563 Sculpture IV
Encourages development of a persona approach to sculpture and creative deci sions. The student selects projects an materials of interest to himself and com pletes them within a classroom situation Prerequisite, Art 562 (previously or con currently.) Six studio hours.

566 Computer Graphics 1
Art students learn FORTRAN while oth ers apply their programming skills t computer art. Lecture/workshop session 4 hours per week. Lab 2 hours. Intervie with instructor required.

570 Introduction To Metals and Fibers
Introduction to materials and technique related to design and execution of object utilizing, or embellished by, metals wood, enamels or fibers. Prerequisite beginning drawing and design.

580 Ceramics I
The designing and making of potter with the potter's wheel and related tools One or more basic courses in creative ar should be taken previously. Six studi hours.

581 Ceramics II
Continuation of Art 580. Prerequisite Art 580. Six studio hours.

582 Ceramics III
Creation of ceramic forms with stress o aesthetic principles rather than utility Introduction to ceramic glaze technolog and coloring media. Related cerami history. Prerequisite, Art 581. Six studi hours.

583 Ceramics IV
Continuation of Art 582. Emphasis o expressive potential of clay and glazes Advanced techniques in glaze technol ogy. Introduction to kiln design. Pre requisite, Art 582. Six studio hours.

85 Glass Blowing I
An introduction to the principles and techniques of glass blowing from molten mixes, emphasizing experimental form. Six studio hours.

86 Glassblowing II
Further refinement through additional forming techniques for molten glass. Prerequisite: Art 585.

99K Art Education
Student Teaching, K-12. Credit, 9.

40 Printmaking: Relief II
Advanced study of materials, techniques, and esthetic considerations relevant to relief printmaking. Six studio hours.

41 Printmaking: Intaglio II
Advanced study of materials, techniques, and aesthetic considerations relevant to etching, engraving and aquatint. Six studio hours.

42 Printmaking: Lithography II
Advanced study of lithography. Emphasis on the concepts and techniques of color lithography. Six studio hours.

50 Professional Practice
Professional and business practices in design and architectual offices. Budgeting, product specifications and legal documents relating to the practice of design. Preparation of a portfolio and resumé, and general preparation for professional careers.

51 Interior Design IV
A continuation of Interior Design III. Builds on the psychological and eco nomic aspects of Interior Design. Students develop their own program (relative to the stated requirements of each project), stressing user needs and alternative solutions to complex commercial design projects. There is flexibility in the tools and techniques in which students may solve and communicate their design solution.

62 Construction Methods and Materials
Interior environmental systems; a survey course for Design students covering electrical, heating, ventilation, air conditioning, plumbing and acoustical systems, and their graphic applications to design and working drawings.

63 Shelter Technology and Design
An introduction to the variety of materials available to designers and their strengths and weaknesses. The basics of structure; study of wood, metals, masonry, concrete, etc. Studio stresses the uses of the materials studied by actual working drawings, detailing, selecting materials, and specification writing.

654 Furniture Technology and Design
Primarily an extension of Art 655 with more emphasis on designs for contract interiors. Students may select the final furniture project of their choice. A field trip to a furniture manufacturer is planned for this semester.

655 Furniture Technology
A studio course which requires the students to produce mechanical drawings and sketch models of free standing and/or built in furniture. The projects are directed towards the typical type of furniture/cabinetry one would normally design and detail for contract interior space. Examples of typical joinery and detailing are discussed. Students should have prior drafting experience.

657 Architectural Design II
Continuation of Architectural Design I.

659 Environmental Behavior and Design Evaluation
Review and analysis of environmental behavior and related design literature. Emphasis on the need for user-based evaluations of design environments as an important component of the environmental design process. Concepts, techniques, and qualitative and quantitative approaches from the behavioral sciences and design professions are considered. Lectures, discussions and practicum sessions.

666 Computer Graphics II
Continuation of Computer Graphics I. Prerequisite: Art 566.

696 Special Problems
Credit, 1-6.

699 Master's Thesis
Credit, up to 18.

720 Painting
Credit, 3-12.

740 Printmaking
Credit, 3-12.

750 Advanced Design
Professional design procedures consisting of complete design solutions from inception to completion of projects. Design projects initiated by students. Three hours of structured class work and discussion, and three hours by arrangement.

760 Sculpture
Credit, 3-12.

780 Ceramics
Credit, 3-12.

791 Seminar In Design
Topics such as: design criticism, current design literature, man/environment problems, design education, sociology of design, energy conservation through design, etc. Guest speakers, possibly one or two field trips; each participant is expected to prepare a class presentation on a chosen topic. Lecture/discussion.

796A Special Problems: Painting
Credit, 1-6.

796B Special Problems: Printmaking
Credit, 1-6.

796C Special Problems: Sculpture
Credit, 1-6.

796D Special Problems: Ceramics
Credit, 1-6.

796F Special Problems: Drawing
Credit, 1-6.

796H Special Problems: Design
Credit, 1-6.

796J Special Problems: Art Education
Credit, 1-6.

History of Art

500 Greek Art
The sculpture, painting, and architecture of ancient Greece from Protogeometric beginnings through the Hellenistic period.

506 Early Medieval Art
Early Christian art and the beginnings of Byzantine art in East and West; Coptic art, Barbarian and Celtic influences in northern Europe; Carolingian, Ottonian, and Anglo-Saxon art.

507 Art of the Romanesque and Gothic Periods
Art of the High Middle Ages; Romanesque and Gothic art. Emphasis on architecture, monumental sculpture, and painting in western Europe.

511 Italian Art of the Early High Renaissance (1400-1520)
The development of Italian art and architecture of the 15th and early 16th centuries in historical context.

512 Art of the Renaissance in Northern Europe
The history of painting, sculpture and the graphic media in the 15th and 16th centuries. Emphasis on the cultural context.

513 Italian Art of the Late Renaissance and Mannerism
The dissolution of the High Renaissance; proto-Baroque and early Mannerist art; the courtly Mannerism of the revived feudal class after 1530; the artistic response to the Counter-Reformation.

516 Italian Baroque Art
Art and architecture in Italy from 1600 to 1750, with emphasis on Rome.

517 Baroque Art and Architecture in Northern Europe
Art and architecture in France, Flanders, Holland, Germany, and Austria from 1600 to 1750. Students are encouraged to take Art 113 or 115 before taking this course.

521 European Art, 1780-1880
Major developments in painting from David to Post-Impressionism in France, England, and Germany.

522 Modern Art, 1880 to the Present
Emphasis on major artists such as late Cezanne and Gauguin, Picasso, Matisse, Klee, Jackson Pollock, Optical and Pop artists. Main developments of style in relation to these artists.

526 American Art
The earliest colonial art, the impact of later European influences, regional art of the 19th and 20th centuries, and contemporary developments.

531 Modern Architecture, 19th Century
Developments in the late 18th century and the history of the changes in style, technical advances, and aesthetic principles during the 19th century in Europe and America.

532 Modern Architecture, 20th Century
Developments in Europe and America, including influential personalities, social and political influences, structural innovations, and aspects of city planning.

536 Islamic Art and Architecture I
Art and architecture of Islamic peoples from their origins up to the Mongol invasions in the 13th century.

537 Islamic Art and Architecture II
Art and architecture of Islamic peoples from the 14th century to our time.

541 Art of India
The effect of the great Eastern religious movement on art in India and surrounding territories. Some attention to secular art and architecture in modern times.

542 The Hindu Temple
The conception and development of the Hindu temple in South and Southeast Asia. Emphasis on the structural traditions of the regions covered.

543 Art of Buddhism
The development of Buddhist arts as they spread through Central Asia into East Asia and through Southeast Asia. The influence of the changing religion on the arts.

546 The Arts of Africa, Oceania, and Pre-Columbian Americas
An introduction to the so-called "primitive arts" of traditional peoples of Africa, Oceanta, and pre-Columbian Americas.

551 Seminar In Roman Art
Origins and development of Roman architecture, portraiture, historical relief, painting, and mosaics. Prerequisite, Art 115 or 500, or Ancient History, or permission of instructor.

552 Art Of Early Mediterranean Cultures
The art of high cultures of the Bronze Age: Egyptian, Mesopotamian, Aegian, Hittite, and related cultures.

556 Medieval Painting
Early Christian to later medieval painting in Eastern and Western Europe.

557 Sumptuary Arts of the Middle Ages
The technique, style, function, and symbolism of liturgical and secular objects in precious materials from Early Christian through Gothic periods. Prerequisite, Art 225 or 227 or permission of instructor.

562 Aspects of Baroque Art in Northern Europe
Selected aspects of art and architecture in France, Flanders, Holland, Germany, and Austria from 1600 to 1750; a combination lecture-seminar of limited size.

563 Aspects of American Architecture
Early American architecture. Colonial architecture in its variety of forms from the first settlements to the Revolutionary War.

566 Criticism of Modern Art—Seminar
Practical exercises in the evaluation of modern paintings. Discussion of the results.

571 Chinese Painting
Shang tomb paintings; Han, Sung, Yuan, Ming, and Ch'ing Dynasty ar and the interplay between the art Japan and the West.

581-585 Great Themes in Art History
Central themes, issues, and problems an important area in the history of art

586-589 Master of Western Art
An intensive study of the work in th field of art. Prerequisite, permission instructor.

600 Greek Painting

601 Roman Painting

606 Studies in Medieval Iconography

611 Problems in Art of the Italian Early Renaissance and the North European Late Middle Ages

612 Problems in Art of the High Renaissance to the Early Baroque

621 Nineteenth-Century Painting & Sculpture

622 Art Since 1880

625 Problems in Contemporary Art

631 Nineteenth Century American Architecture

632 Seminar In 20th Century Architecture
Intensive study of particular aspects o modern architecture such as influentia personalities and important building types.

636 Problems In Islamic Art and Architecture
A graduate seminar dealing with a spe cific problem or problems in the history of Islamic art. Prerequisites: Art 233/536 or Art 235/537 or permission of instruc tor.

641 Seminar in Art of India
Intensive study of selected aspects of the arts of South/Southeast Asia: develop ment of the Hindu temple, impacts of one cultural system on another as seen in the Indian environment.

681 Methods of Art History
Deals with the history of the discipline, its methodological orientations, and the conceptual and technical framework within which art-historical research is undertaken. Required of all M.A.candidates in Art History during the first year of graduate study.

796 Special Problems: Art History
Credit, 3-12.

Astronomy

(Five-College Cooperative Program)

Graduate Faculty

William M. Irvine, *Professor and Head of the Astronomy Program,* B.A., Pomona College, 1957; M.A., Harvard, 1958; Ph.D., 1961.

Arthur R. Swift, *Professor of Physics and Graduate Program Director in Physics and Astronomy.*

Thomas T. Arny, *Associate Professor,* B.A., Haverford College, 1961; Ph.D., Arizona, 1965.

Tom R. Dennis, *Assistant Professor* (Mount Holyoke College).

William A. Dent, *Associate Professor,* B.S., Case Institute of Technology, 1960; M.S., University of Michigan, 1962; Ph.D., 1965.

Paul F. Goldsmith, *Assistant Professor,* A.B., California at Berkeley, 1969; Ph.D., California at Berkeley, 1975.

H. Mark Goldenberg, *Associate Professor of Physics.*

Courtney P. Gordon, *Associate Professor* (Hampshire College).

Kurtiss J. Gordon, *Associate Professor* (Hampshire College).

George S. Greenstein, *Associate Professor* (Amherst College).

Edward R. Harrison, *Professor,* Graduate, Institute of Physics, England, 1949; Associate, 1956; Fellow, 1963.

G. Richard Huguenin, *Professor,* B.S., Massachusetts Institute of Technology, 1959; Ph.D., Harvard, 1964.

Robert V. Krotkov, *Professor of Physics.*

Nicholas Z. Scoville, *Professor,* B.A., Columbia University, 1967; Ph.D., 1972.

Waltraut C. Seitter, *Professor* (Smith College).

Eugene Tademaru, *Associate Professor,* B.S., University of Illinois, 1964; Ph.D., University of Chicago, 1969.

Joseph H. Taylor, Jr., *Associate Professor,* B.A., Haverford College, 1963; Ph.D., Harvard, 1968.

David J. Van Blerkom, *Associate Professor,* B.S., City College of New York, 1963; Ph.D., Colorado, 1969.

Richard E. White, *Assistant Professor* Smith College).

K. Sigfrid Yngvesson, *Associate Professor of Electrical and Computer Engineering.*

Students entering the master's and doctor's programs in astronomy are expected to have a sound background in undergraduate physics. Previous training in astronomy is helpful but not required.

The candidate for a master's degree generally takes a normal course load during the first year. The second year is devoted principally to either research directed toward a thesis or advanced course work. Physics courses are included with astronomy courses for determination of the total graduate credits in the major field. If a thesis is offered, at least six credits must be earned in 600-800 series astronomy courses; if a thesis is not offered, 12 credits must be earned in 600-800 series astronomy courses. A general examination must be passed before the degree is awarded.

The general requirements for the Ph.D. in astronomy are those of the Graduate School. A student takes a normal load of basic courses during the first two years. After passing the qualifying examination, the student is expected to devote his major effort to research. Research problems may be in either theoretical or observational areas. There is no foreign language requirement for the Ph.D. in astronomy. The basic courses of the program are 640, 643, 644, 730, 741, and 843. In addition, students will normally take several courses from Physics 601, 602, 605, 606, 607, 613,614, and 718.

All degree candidates are required to perform teaching in the department. Students requesting a waiver of this requirement must apply to the graduate studies committee.

All courses carry 3 credits unless otherwise specified.

537 Optical Observations
An introduction to the techniques of gathering and analyzing astronomical data. Subjects to be covered depend somewhat on individual interests: fundamental astronomical catalogues and their uses, photography, photometry, spectroscopy, classification of spectra and the astronomical distance scale. Prerequisite, Astron. 222, or permission of instructor. Mr. White

538 Techniques of Radio Astronomy
An introduction to modern methods of astronomical observation and data reduction. Specific techniques of optical astronomy, radio astronomy, and space astronomy discussed and analyzed. Laboratory experiments and field observations. Prerequisites, Physics 172 or 162. Mr. Huguenin.

640 Galactic And Extra-Galactic Astronomy
The stellar density and luminosity functions as applied to the problem of galactic structure. Determination of the galactic force field from stellar motions. Spiral structure, star clusters and their stability. Prerequisite, Physics 421. Mr. Huguenin

643 Astrophysics I
Basic topics in astronomy and astro- Gravitational equilibrium configurations, virial theorem, polytropes, hydrodynamics, thermodynamics, radiation transfer, convective and radiative equilibrium, stellar and planetary atmospheres, the equations of stellar structure. Miscellaneous topics on the physics of stellar and galactic structure. Prerequisite, permission of instructor.
Credit, 4. Mr. Harrison

644 Astrophysics II
Atomic physics and opacity. Nuclear physics and nucleosynthesis in stars. Gravitational instability and star formation. Stellar evolution and electron-degenerate configurations. Gravitational collapse. Topics in plasma physics and the propagation of electromagnetic waves. Topics in magnetohydrodynamics and Alfven waves. Dynamic and kinematic principles of cosmology and a review of the underlying physical processes. Prerequisite, Astron 643.
Credit, 4. Mr. Harrison

696-697 Special Problems
Special study in some branch of astronomy or astrophysics, either theoretical or experimental, under direction of a faculty member. May be repeated for credit. Prerequisites, permission of the Head of the Astronomy program and the directing faculty member.
Credit, 1-6.

699 Master's Thesis
Credit, variable.

717 Plasma Astrophysics
(See also Physics 717)
Fundamentals of plasma physics and magnetohydrodynamics: particle motion in electromagnetic fields, fluid description, wave propagation, instabilities, and radiation in plasmas. Specific applications of astronomical interest: earth's

magnetosphere, sunspots, cosmic rays, interstellar medium, stellar winds, and pulsars. Prerequisite, Physics 606 or permission of instructor. Mr. Tademaru

731 Radio Astronomy
An introduction to observational radio astronomy. Topics include: a brief survey of areas to which radio observations have made important contributions; antenna systems, interferometers, radiometric systems, and other instrumentation; observing methods and techniques. Prerequisites, Physics 422 and Math 231 or equivalent. Mr. Huguenin

732 Numerical Techniques in Experimental Physics and Astronomy
Modern techniques of data acquisition, storage, and analysis, approached from an information-theory point of view and oriented toward applications. Topics include convolution, correlation, Fourier analysis, filtering, curve fitting, and computer techniques. Applications and examples drawn from relevant areas of physics and astronomy. Prerequisite: Physics 422 and Comp. Sci. 409, or equivalent. Mr. Taylor

741 The Interstellar Medium
Observed properties of the interstellar medium from optical and radio data: composition, distribution, and motions. Transfer of dilute radiation and its production in a rarefied gas. The dynamics of the gas as influenced by radiation and gravity. Prerequisite, Astron 644 or permission of instructor. Mr. Arny

745 The Sun
The determination of physical conditions in the solar atmosphere using the various observational data. The features of both the quiet and the active sun: granulation, limb darkening, plages, sunspots, etc. Solar-terrestrial relationships. Prerequisite, Astron 644.

746 Solar System Physics
The physics and chemistry of planetary atmospheres, surfaces, and interiors. Comets, meteors, and asteroids. The solar wind, solar terrestrial relations, and the interplanetary medium. Advanced topics in mechanics applicable to astronomical problems. Prerequisites, Physics 421 and 422 and Astron 644, or permission of instructor. Mr. Irvine

748 Cosmology and General Relativity
Observational cosmology and cosmological principles. Background radiation and Olbers' paradox. Newtonian cosmology. General relativity, gravitational waves, relativistic cosmology, and gravitational collapse. Theories of the universe and the origin of celestial structure. Prerequisite, Physics 424.
Mr. Harrison

791, 792 Seminar—Review of Current Literature
Discussion and review of current articles in the astronomical literature. May be repeated for credit. Required of graduate students.
Credit, 1 each semester

830 Radio Astrophysics
The physical theory fundamental to radio astronomy: propagation of electromagnetic waves in isotropic and anisotropic media with emphasis on plasmas. Faraday rotation, the emission and absorption of synchrotron radiation and bremsstrah-lung emission, spectral lines at radio frequencies; nonthermal radio source models. Prerequisites, Physics 422 and 424. Mr. Dent

843 Stellar Atmospheres
Theory of stellar atmospheres. Observational methods and observational data, formation of the continuous spectrum, line formation and curve of growth techniques in normal stars, stars with envelopes, variable stars, novae, magnetic fields in stars. Departure from local thermo-dynamic equilibrium. Prerequisite, Astron 644. Mr. Van Blerkom

844 Stellar Structure
Stellar structure and evolution: energy generation and transfer in the interior of stars, convective and radiative equilibrium, the computation of stellar models and evolution of young and old stars, red giants, pulsating stars, novae, and white dwarfs. Prerequisites, Astron 643. COINS 409, or equivalent.
Mr. Harrison

850 Advanced Topics in Astronomy
Topics of special interest not covered in regular courses. Prerequisite, permission of instructor.

860 Seminar on ResearchTopics in Astronomy
Topics of current interest not covered in regular courses. Instruction via reading assignments and seminars. May be repeated for credit. Prerequisite, permission of instructor.
Credit, 1-3.

899 Doctoral Dissertation
Credit variable, not to exceed 18.

Related Courses

Physics

601 Classical Mechanics

602 Statistical Physics

605 Methods of Mathematical Physics

606 Classical Electrodynamics I

607 Classical Electrodynamics II

613 Introductory Quantum Mechanics I

614 Introductory Quantum Mechanics II

718 Basic Physics of Atoms and Molecule

Graduate Faculty

Henry N. Little, *Professor and Head of the Department of Biochemistry,* B.S. Cornell, 1942; M.S., Wisconsin, 1946; Ph.D., 1948.

Edward W. Westhead, *Professor and Graduate Program Director,* B.S., Haverford, 1951; M.S., 1952; Ph.D., Brooklyn Polytechnic, 1955.

John F. Brandts, *Professor of Chemistry.*

Mark S. Fischer, *Assistant Professor,* A.B., Brandeis, 1965; Ph.D., California at Berkeley, 1969.

Maurille J. Fournier, *Associate Professor,* B.A., Vermont, 1962; Ph.D., Dartmouth, 1967.

R.C. Fuller, *Professor,* B.A., Brown, 1947; M.A., Amherst, 1948; Ph.D., Stanford, 1952.

Anthony M. Gawienowski, *Associate Professor,* B.A., Villanova, 1948; M.A., Missouri, 1953; Ph.D., 1956.

Bruce S. Jacobson, *Assistant Professor,* B.A., California State at L.A., 1962; M.A., 1964; Ph.D., 1970.

Thomas L. Mason, *Assistant Professor,* B.S., Wisconsin, 1962; M.S., Louisiana State, 1965; Ph.D., Minnesota, 1970.

John H. Nordin, *Professor,* B.S., Illinois, 1956; Ph.D., Michigan State, 1961.

Trevor Robinson, *Associate Professor,* B.A., Harvard, 1950; M.A., 1951; M.S., Massachusetts, 1953; Ph.D., Cornell, 1956.

Ira S. Schwartz, *Assistant Professor,* B.S., City College of New York, 1968; Ph.D., City University of New York, 1973.

Linda L. Slakey, *Assistant Professor,* B.S., Siena Heights, 1962; Ph.D., Michigan, 1967.

Robert A. Zimmermann, *Professor,* B.A., Amherst, 1959; Ph.D., Massachusetts Institute of Technology, 1964.

General Information

Candidates for the degrees of Master of Science and Doctor of Philosophy in Biochemistry are accepted for admission under the general regulations of the Graduate School. Students normally must complete the following undergraduate courses before admission to either degree program: two semesters each of organic chemistry, physical chemistry, calculus, physics and biology. Satisfactory completion of the admission requirements will be judged by the Graduate Study Committee of the Department on evidence of the student's undergraduate transcript. Those students with deficiencies must remove them at the earliest possible date by taking the appropriate courses. Students may register for graduate credit courses while doing this remedial work, but no graduate credit is given for such remedial courses.

SUMMARY OF REQUIREMENTS FOR THE Ph.D. DEGREE

Upon entrance a student is assigned an adviser who will work out the first-year courses, seminar and research programs with the entering student. In addition, all students must attend regular departmental seminars. At the end of the first two semesters the student must have remedied any deficiencies, and have taken the equivalent of one year's graduate study in biochemistry (including laboratory work).

A comprehensive examination which includes a written component and oral component of the research-proposal type is required of all Ph.D. students. In addition to the comprehensive examination, all Ph.D. candidates must complete the preparation of a dissertation satisfactory to their Dissertation Committees and pass a final oral examination on that dissertation.

SUMMARY OF REQUIREMENTS FOR THE M.S. DEGREE.

Entrance requirements for the master's degree are similar to those for the Ph.D. degree. They may be fulfilled by remedial work during the first year. All students are expected to complete 30 graduate credits, no more than 10 of which may be earned by means of a thesis. A thesis, based on either laboratory or library research, is defended in an oral examination.

General Requirements For All Graduate Students

All entering candidates for either the M.S. or Ph.D. degree must participate in one or more research projects before the end of the first year of studies. It is expected that the master's degree will take two years to complete, and the Ph.D. degree two years after the award of a master's degree from this or another institution.

All courses carry 3 credits unless otherwise specified.

523,524 General Biochemistry
A broad introduction to biochemistry, primarily for undergraduate biochemistry majors and others wishing a fundamental course. Prerequisite, Chem. 262 or 266.

525,526 Biochemistry Laboratory
Introduction to laboratory work with biochemical materials and techniques. Prerequisite, Chem 310 or equivalent. *Credit, 1-2.*

621,622 Advanced Biochemical Techniques
A laboratory course to provide experience in isolation, identification and analysis of biochemical compounds. Prerequisite, permission of instructor. *Credit, 1-4 (621), 3(622).* Mr. Fournier

623,624 Advanced General Biochemistry
A broad introduction to biochemistry, primarily for advanced undergraduate and graduate biochemistry majors. Prerequisite, Chem 262 or 266.

627 Hormones
Biochemical relationship of the hormones; emphasis on their role in vertebrate development and metabolism. Prerequisite: Biochem 420 or 523; alternate fall semesters. Mr. Gawienowski

631 Plant Biochemistry
The chemistry and metabolism of plants with particular emphasis on higher plants. Topics such as nitrogen metabolism, photosynthesis, and the chemistry of compounds peculiar to plants. Prerequisite, Biochem 623,624.
Mr. Robinson

691 Departmental Seminar
Required of all graduate students. *Credit, 1 each semester*

696 Special Problems
Library or laboratory research under direction of faculty member. Credit, 1-6

699 (800) Master's Thesis
Credit, 1-10.

720 Biochemistry of Cellular Membranes
Basic chemical and physical properties of biological components. Topics include membrane structure, cell surface properties, energy transducing systems, transport systems, membrane fusion, assembly of membranes. Prerequisite, Biochem 623, 624 or equivalent.

Botany

728 Protein Physical Chemistry
The chemical, physical, and biological properties of proteins. Prerequisites, Biochem 623,624 and Chem 476.
Mr. Brandts

729 Enzymes
Functions of enzymes as catalysts and regulatory elements. Topics include: metal ion activation, conformational changes, allosteric control and subunit interactions, regulation of enzymes by post translational modification, and enzymes in membranes. Weekly homework problems cover kinetic and thermodynamic concepts and are frequently taken from current research literature. Prerequisite, Biochem 623, 624. Phys. Chem. desirable.
Mr. Westhead

740 Protein Synthesis
The mechanism and regulation of protein biosynthesis including the structure and function of tRNA, mRNA and ribosomes. Course material reflects recent advances in the field. Prerequisite, Biochem. 623, 624 or equivalent and permission of instructors.
Mr. Zimmermann, Mr. Schwartz, Mr. Fournier

742 Biochemistry of Nucleic Acids
The biosynthesis, structure and function of nucleic acids and the proteins involved in nucleic acid metabolism. Topics and emphasis reflect current developments in this area. Prerequisite, Biochem 623, 624 or equivalent and permission of instructors.
Mr. Fournier, Mr. Schwartz, Mr. Zimmermann

791 Seminar—Developmental Biochemistry
Credit, 2

792 Seminar—Nucleic Acids
Credit, 2

793 Seminar—Membranes
Credit, 2

797 Special Topics in Biochemistry
Topics of current interest which may include hormones, lipids, carbohydrates, control mechanisms, protein synthesis, membranes, nucleic acids, biochemical data analysis and protein-nucleic acid interactions. Prerequisite, Biochem 623,624.

899 Doctoral Dissertation
Credit, 1-18.

Graduate Faculty

Edward L. Davis, *Professor and Head of the Department of Botany,* B.A., Harvard, 1951; M.S., Massachusetts, 1953; Ph.D., Washington University, 1956.

Margaret E. Barr Bigelow, *Professor and Graduate Program Director,* B.A., British Columbia, 1950; M.A., 1952; Ph.D., Michigan, 1956.

David W. Bierhorst, *Professor,* B.S., Tulane, 1947; M.S., 1949; Ph.D., University of Minnesota, 1952.

Howard E. Bigelow, *Professor,* B.A., Oberlin, 1949; M.A., 1951; Ph.D., Michigan, 1956.

Paul J. Godfrey, *Associate Professor,* B.S., Connecticut, 1962; Ph.D., Duke, 1969.

Peter K. Hepler, *Associate Professor,* B.A., University of New Hampshire, 1958; Ph.D., University of Wisconsin, 1964.

John S. Heslop-Harrison, *Visiting Professor,* M.Sc., Dunelm; Ph.D., Belfast; D.Sc., Dunelm.

Livija Kent, *Associate Professor,* B.A., Barnard, 1961; M.A., Columbia, 1964; Ph.D., 1967.

Edward J. Klekowski, Jr., *Associate Professor,* B.A., 1962; M.S., N.C. State, 1964; Ph.D., California at Berkeley, 1968.

Robert B. Livingston, *Professor,* B.A., Colorado College, 1938; M.A., Duke, 1941; Ph.D., 1947.

James A. Lockhart, *Professor,* B.S., Michigan State, 1949; M.S., 1952; Ph.D., California at Los Angeles, 1954.

David L. Mulcahy, *Associate Professor,* B.A., Dartmouth, 1959; Ph.D., Vanderbilt, 1963.

Bernard Rubinstein, *Assistant Professor,* B.S., Michigan State, 1960; M.S., Purdue, 1962; Ph.D., California at Berkeley, 1968.

Rudolf M. Schuster, *Professor,* B.S., Cornell, 1945; M.S., 1946; Ph.D., Minnesota, 1948.

Seymour Shapiro, *Professor and Dean of the Faculty of Natural Sciences and Mathematics,* B.S., Michigan, 1947; Ph.D., 1953.

Otto L. Stein, *Professor,* B.S., Minnesota, 1949; M.S., 1952; Ph.D., 1954.

Arthur I. Stern, *Associate Professor,* B.S., City College of New York, 1953; Ph.D., Brandeis, 1962.

Lawrence G. Stowe, *Assistant Professor,* B.A., Yale, 1972; Ph.D., University of Chicago, 1977.

Carl P. Swanson, *Ray Ethan Torrey Professor,* B.S., Massachusetts State, 1937; M.A., Harvard, 1939; Ph.D., 1941.

Oswald Tippo, *Commonwealth Professor,* B.S., Massachusetts, 1932; M.A., Harvard, 1933; Ph.D., 1937.

James W. Walker, *Associate Professor,* B.A., University of Texas, 1964; Ph.D., Harvard, 1970.

Peter L. Webster, *Associate Professor,* B.S., University of St. Andrews, 1964; Ph.D., Western Reserve, 1968.

Robert T. Wilce, *Professor,* B.S., University of Scranton, 1950; M.S., Vermont, 1952; Ph.D., Michigan, 1957.

Candidates for the degrees of Master of Arts, Master of Science, and Doctor of Philosophy are accepted for admission under the general regulations of the Graduate School. Admission to advanced courses does not imply admission to candidacy for an advanced degree. Only students whose knowledge of botany and related chemical and physical sciences is considered by the Department to be adequate will be accepted as candidates for advanced degrees. Research work leading to the thesis may be selected from the fields of anatomy, cytology, ecology, morphology, morphogenesis, physiology and taxonomy. Candidates for the degree of Master of Arts in Teaching are expected to meet all the departmental requirements of the other masters degrees.

The Botany Department normally requires candidates for the Ph.D. degree to demonstrate on the intermediate level reading knowledge of two foreign languages, one of which must be German. Choice of the second language will be made after consultation between the student and his guidance committee. Waiving of the requirement for the second language requirement may be made by consultation of the student with his guidance committee and must be approved by the departmental Degree Requirements Committee.

All courses carry 3 credits unless otherwise specified.

501 Morphogenesis
Lectures and laboratory exercises demonstrating the development of plant form utilizing examples from throughout the plant kingdom. Mr. Davis

503 Plant Morphology
The life cycles of various non-vascular plant taxa, the dynamics of their evolution and the interpretation of various morphological structures. Prerequisite, Botany 100 or permission of instructor.
Credit, 4. Mrs. Bigelow, Mr. Schuster, Mr. Wilce

504 Plant Morphology
As 503, but vascular plant taxa.
Credit, 4. Mr. Bierhorst, Mr. Schuster

511 Introductory Plant Physiology
How the plant grows and feeds itself. Methods of communication among cells and organs, and between plant and environment. Prerequisite, 1 semester organic chemistry.
Credit, 4. Mr. Rubinstein, Mr. Stern

512 Plant Metabolism
The basic metabolic processes in plants including carbohydrate metabolism, glycolysis, respiration, photosynthesis, lipid metabolism and protein synthesis. Biological as well as chemical approach. Emphasis on free energy changes and the enzymatic reactions and pathways involved. Mr. Stein
Credit, 4.

514 Genetic Manipulation of Plants
How contemporary concepts and techniques of genetics analysis can extend understanding of the hereditary potential of plants.
Mr. Mulcahy, Mr. Klekowski

515 Plant Growth
Description and analysis of the physiology, kinetics, and energetics of plant growth; the methods used to study growth. Cells, tissues, whole plants, and assemblages of plants. Prerequisites, Botany 511 and College Physics.
Mr. Lockhart

519 Ecological Plant Physiology
Physiology of plants in relation to the classes of problems they face and the various strategies evolved for survival and growth. Prerequisites, Botany 211 and one semester of differential calculus.
Mr. Lockhart

521 Plant Ecology
Interrelationships between plants and their environment; the structure and development of plant communities.
Mr. Godfrey, Mr. Mulcahy

522 Autecology
Plant behavior in relation to the physical and biological environment. Emphasis on the ecology of individual plants. Prerequisites, Botany 511 and 521.
Mr. Godfrey

524 Coastal Plant Ecology
The botany and ecosystem processes along the U.S. East Coast. Emphasis on salt marshes, maritime forests and grasslands, dune strand, and the impact of modern man. Prerequisite, Botany 521.
Mr. Godfrey

526 Plant Geography
Principles governing the development and natural distribution of plants and plant communities. Special consideration of the vegetation of North America. Prerequisite, Botany 521.

528 Principles of Evolution
Ecological phenomena through the application of genetic concepts. The adaptation of individuals, populations, and communities as functional units. Prerequisites, introductory botany or zoology. Mr. Mulcahy

531 General Mycology
Survey of the various fungi, their life history and distribution, their significance in disease, their utilization by man.
Mr. H.E. Bigelow, Mrs. M.E.B. Bigelow

541 Phycology
The phylogeny, taxonomy, morphology, and ecology of the major groups of marine and fresh water algae. Includes field work in both marine and fresh water environments. Mr. Wilce

551 The Archegoniates
The morphology, evolution, and systematics of primitive land plants. Emphasis on evolution and systematics of Bryophyta. Mr. Schuster

555 Experimental Pteridology
An integrated view of physiological and genetical parameters of the pteridophyte life cycle. Prerequisites, Botany 240 or Zool 240, and Botany 211.
Mr. Klekowski

560 Plant Anatomy
Origin and structure of vegetative and reproductive organs of seed plants coordinated with exercises in preparation of stained slides for microscopic studies.
Credit, 4. Mr. Bierhorst

570 Cytogenetics
The correlation of genetic data with chromosome behavior, including an analysis of the mechanism of crossing over. Evolutionary considerations of changes to chromosome structure and number. Prerequisites, Zool 540 and a cytology course preferred. Mr. Swanson

571 Developmental Plant Cytology
Development, structure, and function of cell organelles; cell reproduction and differentiation, with reference to the behavior and role of the nucleus.
Mr. Stein, Mr. Swanson, Mr. Webster

580 Origin, Evolution and Distribution of Flowering Plants
Survey of evolutionary history of primitive flowering plants and the significance of their geographic distributions. Prerequisite, Botany 225 or equivalent. Recommended, Botany 581, 591.
Credit, 4.

581 Introductory Angiosperm Systematics
The evolution and systematics of flowering plants, emphasizing families and their relationships. Mr. Walker
Credit, 4.

611,612 Advanced Plant Physiology
Selected topics in plant physiology. Lectures, laboratory, and individual conferences. Prerequisites, Botany 511 and permission of instructor.
Credit, 2-4 each semester. Mr. Stern, Mr. Lockhart, Mr. Rubinstein

621 Advanced Plant Ecology
Lectures, conferences, critical reading, and reports on advanced considerations of synecology and autecology. Prerequisite, Botany 521. Mr. Godfrey

631 Advanced Mycology
Systematics and ecology of the higher ascomycetes and basidiomycetes. Prerequisite, Botany 531 or equivalent.
Credit, 4.
Mr. H.E. Bigelow, Mrs. M.E.B. Bigelow

641 Advanced Phycology
Detailed study of marine and fresh-water algae. Emphasis on phylogeny, life histories, and ecology. Prerequisite, Botany 541 or equivalent. Mr. Wilce

650 Plant Photosynthesis
Lectures and discussions of the literature on the mechanisms and requirements of photosynthesis, including the light and dark reactions and the process of photorespiration. Prerequisite, Botany 512 or Chem 524 or equivalent. Mr. Stern

681 Advanced Angiosperm Systematics
Consideration of angiosperm systematics and evolution at an advanced level. Topics may vary from year to year. May be

repeated with permission of instructor. Three class hours, one 3-hour laboratory-discussion period. Prerequisite, Botany 528 and Botany 581, or permission of instructor. Mr. Walker
Credit, 4.

683 Palynology
Comparative morphology of modern and fossil pollen grains and spores, including development of the pollen wall. Emphasis on the taxonomic use of pollen characters for angiosperm systematics.
Mr. Walker

696 Special Problems
Research not expected to terminate in a thesis; advanced study in special subjects.
Credit, 1-5 each semester.

699 Master's Thesis
Maximum credit, 10.

815 Plant Growth Regulators
Recent advances in the field, including phytochrome, auxins, gibberellins, cytokinins, and herbicides. The mechanisms whereby these materials control plant growth and development. Possible experimental approaches. Prerequisites, Botany 511 and one semester of biochemistry. Mr. Rubinstein, Mr. Marsh

899 Doctoral Dissertation
Credit, 18.

Business Administration

Graduate Faculty

Jack S. Wolf, *Professor and Associate Dean of the School of Business Administration,* B.A., Coe, 1949; M.B.A., Wharton, 1950; Ph.D., State University of Iowa, 1957.

Donald G. Frederick, *Professor of Marketing and Doctoral Program Director,* B.S., Indiana, 1957; M.B.A., 1958; D.B.A., Washington University, 1964.

Craig L. Moore, *Associate Professor of General Business and Finance and Master's Programs Director,* B.S., West Virginia, 1967; M.A., Syracuse, 1972; Ph.D., 1972.

Wynn A. Abranovic, *Associate Professor of General Business and Finance,* B.E.E., Rensselaer Polytechnic Institute, 1963; M.S., 1965; Ph.D., 1969.

John W. Anderson, *Professor of Accounting,* B.S., Indiana University, 1949; M.B.A., 1953; C.P.A., Maine, 1952.

Morton Backer, *Professor of Accounting,* B.B.A., Boston University, 1939; M.Lt., University of Pittsburgh, 1950; Ph.D., 1958; C.P.A., New York and West Virginia, 1941.

Joseph L. Balintfy, *Professor of General Business and Finance,* Dipl. Eng., University of Technical Sciences, 1947; Dipl. Ec., 1948; D.Eng., The Johns Hopkins University, 1962.

Mary K. Barber, *Associate Professor of Marketing,* B.S., Massachusetts State, 1944; M.A., New York University, 1948; Ph.D., 1969.

Alexander Barges, *Professor of General Business and Finance,* B.S., University of California, 1956; M.B.A., Northwestern, 1956; Ph.D., 1962.

Tim Bornstein, *Professor of Management,* B.A., University of Louisville, 1954; J.L., Harvard, 1957.

Ben S. Branch, *Associate Professor of General Business and Finance,* B.A., Emory, 1965; M.A., Texas, 1968; M.A., Michigan, 1969; Ph.D., 1970.

Victor P. Buell, *Professor of Marketing,* B.A., Pennsylvania State, 1938.

D. Anthony Butterfield, *Associate Professor of Management,* B.S., Yale, 1961; M.A., Michigan, 1963; Ph.D., 1968.

Arthur E. Carlisle, *Professor of Management,* B.A., McGill, 1948; M.B.A., Michigan, 1963; Ph.D., 1966.

Sangit Chatterjee, *Assistant Professor of General Business and Finance,* B.E., Calcutta University, 1966; M.B.A., 1970; Ph.D., 1973, New York University.

Gordon K.C. Chen, *Associate Professor of Management,* B.S., Great China University, 1945; M.A., University of Iowa, 1950; Ph.D., 1956.

Sidney J. Claunch, *Associate Professor of Management,* B.A., Ohio, 1949; M.B.A., Wisconsin, 1951; Ph.D., 1958.

John T. Conlon, *Professor of Management* B.B.A., Massachusetts, 1949; M.A., Connecticut, 1951; Ph.D., Michigan State, 1960.

A. Wayne Corcoran, *Professor of General Business and Finance,* B.S., Cornell, 1954; M.S., University of Rochester, 1960; C.P.A., State University of New York, 1960 Ph.D., 1966.

Carl Dennler, Jr., *Professor of Accounting* B.S., University of Missouri, 1948; M.A., 1950; Ph.D., Wisconsin, 1962.

William Dillon, *Assistant Professor of Marketing,* B.A., Hunter College, 1970; M.B.A., 1973; Ph.D., City University of New York, 1976.

Arthur Elkins, *Associate Professor and Chairman of the Department of Management,* B.B.A., Massachusetts, 1957; M.S., Columbia, 1958; D.B.A., Indiana, 1967.

Frederick E. Finch, *Associate Professor of Management,* B.S., Kent State, 1961; M.B.A., 1963; D.B.A., University of Washington, 1966.

Joseph E. Finnerty, *Assistant Professor of General Business and Finance,* B.S., Notre Dame, 1967; M.B.A., Michigan, 1969; Ph.D., 1974.

John M. Fitzgerald, *Assistant Professor of Accounting,* B.S., U.S. Merchant Marine Academy, 1944; B.B.A., Southern Methodist, 1950; M.A., Connecticut, 1961.

Samuel Goldman, *Assistant Professor of General Business and Finance,* B.B.A., Michigan, 1960; M.B.A., Wharton (Pennsylvania), 1962; J.D., Northwestern, 1965.

Martin L. Gosman, *Associate Professor of Accounting,* B.B.A., Wisconsin, 1965; M.B.A., 1966; Ph.D., 1971; C.P.A., Wisconsin, 1972.

Van Court Hare, Jr., *Professor of Management,* B.S., Massachusetts Institute of Technology, 1950; M.A., Columbia, 1953; Ph.D., 1961.

H. Richard Hartzler, *Professor and Chairman of the Department of General Business and Finance,* B.A., Indiana, 1950; J.D., 1955.

Eugene E. Kaczka, *Professor of General Business and Finance,* B.S., Rensselaer Polytechnic Institute, 1960; M.S., 1961; Ph.D., 1966.

Anthony T. Krzystofik, *Professor and Chairman of the Department of Accounting,* B.S., American International College, 1952; M.A., Connecticut, 1961; C.P.A., Massachusetts, 1956.

Prem Kumar, *Assistant Professor of Finance,* B.S., University of Delhi, India, 1965; M.S., Wisconsin, 1967; Ph.D., 1970.

Richard Leifer, *Assistant Professor of Management,* A.B., California at Berkeley, 1964; M.S., 1966; Ph.D., Wisconsin, 1975.

Robert W. Lentilhon, *Professor of Accounting,* B.S., Rhode Island, 1949; M.B.A., Boston University, 1963; C.P.A., Massachusetts.

Bertil Liander, *Associate Professor of Marketing,* Undergraduate, Schartau College, 1948; M.B.A., Stockholm School of Economics, 1954; Ph.D., Massachusetts, 1972.

Joseph A. Litterer, *Professor of Management,* B.S., Drexel Institute of Technology, 1950; M.B.A., 1955; Ph.D., Illinois, 1959.

James B. Ludtke, *Professor of General Business and Finance,* B.A., State University of Iowa, 1947; M.A., 1948; Ph.D., 1951.

Thomas McAuley, *Lecturer in Management,* B.S., Northeastern, 1941; M.S., B.A., Massachusetts, 1974.

Robert E. McGarrah, *Professor of Management,* B.S., Lafayette, 1943; M.S., Princeton, 1948; Ph.D., Cornell, 1951.

Stephen R. Michael, *Professor of Management,* B.A., Rutgers University, 1948; M.A., Harvard, 1949; Ph.D., Columbia, 1967.

Ula K. Motekat, *Associate Professor of Accounting,* B.S., Denver, 1964; M.B.A., 1966; D.B.A., Colorado, 1972.

James P. O'Connell, *Associate Professor of Accounting,* B.B.A., Massachusetts, 1958; M.B.A., Boston University, 1961; J.D., Western New England, 1973; C.P.A., Massachusetts.

George S. Odiorne, *Professor of Management,* B.S., Rutgers, 1948; M.B.A., New York University, 1951; Ph.D., 1957.

Grant M. Osborn, *Professor of General Business and Finance,* B.S., Brigham Young, 1948; M.B.A., Stanford, 1950; Ph.D., Pennsylvania, 1955.

Gordon W. Paul, *Professor and Head of the Department of Marketing,* B.S., Tulsa, 1955; M.B.A., University of Texas, 1962; Ph.D., Michigan State, 1966.

Robert H. Plattner, *Associate Professor of General Business and Finance,* B.S., Missouri, 1950; M.B.A., Ohio State, 1962; Ph.D., University of Michigan, 1968.

Robert L. Rivers, *Professor of General Business and Finance,* B.A., Clark, 1943; M.S., Illinois, 1947; Ph.D., 1957.

Kenan Sahin, *Associate Professor of Management,* B.S., Massachusetts Institute of Technology, 1963; Ph.D., 1969.

Joseph L. Sardinas, Jr., *Assistant Professor of Accounting,* B.S., Connecticut, 1969; M.B.A., 1970; Ph.D., Pennsylvania State, 1975.

Charles D. Schewe, *Assistant Professor of Marketing,* B.A., Michigan, 1965; M.B.A., 1965; Ph.D., Northwestern, 1971.

Sidney Schoeffler, *Professor of Marketing,* B.S., New York University, 1945; A.M., Pennsylvania, 1946; Ph.D., New School for Social Research, 1952; C.P.A., New Jersey, 1949.

George Schwartz, *Associate Professor of Marketing,* B.A., Brooklyn College, 1943; Ph.D., Pennsylvania, 1960.

Richard H. Simpson, *Associate Professor of Accounting,* B.B.A., Massachusetts, 1958; M.B.A., North Carolina, 1961; Ph.D., 1967; C.P.A., North Carolina, 1964.

Frank A. Singer, *Professor of Accounting,* B.S., Indiana, 1948; M.B.A., 1949; D.B.A., 1955.

Wendell R. Smith, *Commonwealth Professor,* B.S., Iowa, 1932; M.A., 1935; Ph.D., 1941.

Donald E. Stone, *Associate Professor of Accounting,* B.S., Lehigh, 1961; M.B.A., Wisconsin, 1952; Ph.D., 1965; C.P.A., Wisconsin, 1965.

Sidney C. Sufrin, *Professor of General Business and Finance,* B.A., University of Pennsylvania; Ph.D., Ohio State, 1940.

Marc Weinberger, *Assistant Professor of Marketing,* B.B.A., University of Massachusetts, 1970; M.B.A., 1972; D.B.A., Arizona State University, 1976.

William B. Whiston, *Associate Professor of General Business and Finance and Director of the Center for Business and Economic Research,* B.A., Amherst, 1943; B.D., Yale, 1947; B.S., Massachusetts Institute of Technology, 1949; M.S., Cincinnati, 1964; M.A., Harvard, 1967; Ph.D., 1972.

Michael Whitman, *Instructor of Accounting,* B.B.A., University of Massachusetts, 1960; J.D., Western New England Law School, 1972; L.L.M., Boston University, 1975.

Parker M. Worthing, *Associate Professor of Marketing,* B.S., University of Maine, 1962; M.B.A., Michigan State, 1964; Ph.D., 1968.

Stanley Young, *Professor of Management,* B.A., Washington University, 1949; M.B.A., Pennsylvania, 1951; Ph.D., 1956.

DOCTOR OF PHILOSOPHY PROGRAM

The goal of the Ph.D. Program in Business Administration is to produce scholars capable of teaching and doing research related to the management of organizations. To accomplish this goal, the program is designed to produce students who have demonstrated competence in:

1. The foundation areas of the behavioral sciences, research methodology, statistics, and economics;
2. a major area of concentration within administration, and an allied area of minor concentration;
3. designing, executing, and completing a significant research project;
4. teaching.

GENERAL PROGRAM OF STUDY

To accomplish these objectives, the student normally will spend a minimum of three years completing the program. During the first year, the student prepares to take qualifying examinations in the foundation areas by taking specified courses in behavioral sciences, research methodology, statistics, and economics. After satisfactorily passing three written examinations in the foundation areas the student completes a program of study in a major and minor field of concentration during the second year. After passing a comprehensive examination in the fields of concentration, the student exhibits an ability to do research by completing a doctoral dissertation, during the third year. In addition, each student must have one year's teaching experience prior to graduation.

A normal program will consist of 51 credit hours of course preparation and 18 credit hours for the doctoral dissertation.

PREREQUISITES TO THE PROGRAM

All applicants are expected to be graduates from an accredited college or university and to have achieved acceptable grade point averages in all prior undergraduate and graduate studies. Applicants are required to submit a score on the Graduate Management Admission Test (formerly Admissions Test for Graduate Study in Business).

Students unable to meet the program's entrance requirements will generally have to take more courses than a student who has completed an undergraduate or master's degree in Business Administration. Consequently, the three-year nominal time period will generally be exceeded by those students who have not met many of the pre-requisites prior to matriculation.

It is intended that specific course requirements be kept to a minimum so that students in cooperation with their advisors and the Director of the Ph.D. program may choose a program which best meets their own needs from the offerings available. Introductory course requirements listed below, therefore, are primarily those which are prerequisite to proper performance in doctoral level courses. These requirements ensure a minimal level of competence.

The following pre-requisites should be met upon application or shortly after entry to the Ph.D. Program:

1. Information Systems and Management Science
Working knowledge of computer programming, knowledge of management's use of computers, and knowledge of basic management science applications and models.

2. Mathematics and Statistics
Working knowledge of differential and integral calculus, matrix algebra, probability, sampling, estimation, hypothesis testing, experimental design, and regression.

3. Economics
Intermediate level knowledge of microeconomics and macroeconomics.

4. Social and Behavior Science
Each student will be expected to demonstrate competence in the behavioral and social sciences and an advanced course in organizational theory or behavior.

5. Business Administration
A prior degree in business or demonstrated knowledge at the introductory level of the following areas: Accounting, Finance, Marketing, Business Policy, Operations Management, Public Policy toward business, and Business Law.

Students entering the program may have acquired the knowledge by formal course work, self-study, or work experience.

CORE REQUIREMENTS

All students are expected to demonstrate competence in the foundation or core areas of the behavioral sciences, economics, research methodology, and statistics. This competence is demonstrated by passing a written examination in behavioral science, in economics, and in statistics. Competence in research methodology is demonstrated within both the behavioral science and statistics examinations.

Courses are offered during the student's first year in behavioral science (6 credits), economics (6 credits), and statistics (6 credits) to assist the student preparing for these qualifying (core) examinations. However, the courses are not mandatory and students may prepare for the qualifying examinations by self-study, or by taking courses at other institutions. Qualifying examinations are offered several times during the year and an entering doctoral student may take one or more qualifying examinations when entering the program, or later. All qualifying examinations must be successfully completed within 24 months after entering the program.

To further strengthen a student's capability to do dissertation research, a 3-credit course on Research in Business Administration is required. This course should be taken no later than the next to last semester of course work (normally the third semester after entry). The purpose of this course is to facilitate the student's planning and design of the dissertation research.

FIELDS OF CONCENTRATION

The fields of concentration normally consist of a minimum of 30 semester hours, comprised of a major field and a minor field. The minor concentration may be selected from graduate courses offered anywhere at the University and must comprise at least nine semester hours of the 30-hour program. The major concentration must be selected from one of the following:

Accounting
Administration and Policy
Finance
Industrial and Personnel Relations
Information and Control Systems
Management Science
Marketing
Operations Management
Organizational Theory and Behavior

The major field of Administration and Policy is intended to be broad in scope and does not require a specified minor field. Students selecting Administration and Policy as a concentration may elect one of four optional programs within this major: Environmental Analysis and Policy, Business Policy, International Business Management, or Urban and Regional Administration.

After completing a program of study (core areas and fields of concentration) the student must successfully complete a written and oral comprehension examination covering the areas of concentration.

DOCTORAL DISSERTATION

Upon completing the comprehensive examination, the student meets with a dissertation advisory committee and defends the dissertation proposal. After the committee accepts the proposal, the student will complete the dissertation research to the satisfaction of the committee. The student must then successfully complete a final oral examination.

TEACHING REQUIREMENT

All doctoral students must have one year's teaching experience prior to graduation. This requirement may be satisfied by presenting evidence of previous teaching experience, or by serving as a teaching assistant in the School of Business Administration. All teaching assistants take part in an instruction training and evaluation seminar during the first semester of their teaching assignment.

SUMMARY OF DOCTORAL PROGRAM

Phase 1 (1st. Yr.) Total Credits: 18*
Behavioral Science, 6cr.; Economics, 6 cr.; Statistics, 6 cr.; Written Qualifying Examinations

Phase 2 (2nd Yr.) Total Credits: 33
Major and minor concentrations, 30 cr.; Research in Business Administration, 3 cr.; Comprehensive Examination

Phase 3 (3rd Yr.) Total Credits: 18
Dissertation Proposal Defense; Dissertation Research, 18 cr.; Final Oral Examination

*Portions of these 18 credits will be waived by successful completion of written qualifying examinations.

MASTER'S DEGREE PROGRAMS

In accordance with the accreditation guidelines of the AACSB, the foundation for Master's study within the School consists of basic course work in economics, statistics, accounting, finance, marketing, computer methods, organizational behavior, and the social and legal environment. Any baccalaureate degree holder is eligible to apply for the program.

A common first semester of Master's core courses are required which include the following: BA 630 (608), 640 (609), 644 (602), 650 (750), and 680 (780). Courses taken in the following semesters vary depending upon the particular program.

Students seeking entry into the Master's program may be waived in some foundation courses if they had an undergraduate major in an area or if they had a high concentration of courses in a particular area of study. Waivers will be made on a case by case basis. If there are no waivers, the normal Master's degree program is 54 hours. There is a minimum 42-hour requirement for all programs except the MSBA in Accounting.

Admission to the Master's Program is only open in the Fall semester and all students take the common first-semester core courses regardless of the particular program in which they are enrolled.

A description of the requirements of the various Master's degree programs of the School follows.

THE MASTER OF BUSINESS ADMINISTRATION DEGREE

The MBA program is designed to develop general management and administrative skills and to provide candidates with a broad base of business knowledge. To insure that all students are exposed to all of the broad aspects of business, the MBA program requires a number of courses beyond the foundation courses listed for all Master's programs. These include an elective in the area of Business and Society, an elective in Quantitative Methods, a course in Operations Management, and 12 credits of other general electives.

While the MBA is structured to provide a general management education, students may elect to specialize in an area by concentrating the 12 hours of second-year electives in one field such as Management Science, Production, Public Management, or in some area outside the School of Business such as Public Health, Education, Economics, Sports Studies, etc. This provides a candidate with the opportunity to receive an MBA with a concentration. If a higher degree of specialization is desired, the student should consider the Master of Science in Business Administration degree programs which offer more concentration in a limited number of areas.

The MBA degree program is a four-semester sequence over two years. Candidates take the following sequence of courses beginning in the fall semester only:

Fall Semester—BA 630 (608), 640 (609), 644 (602), 650 (750) and 680 (780).

Spring Semester—BA 631 (730), 641 (740), 660 (760), 681 (607) and 685 (770).

Fall Semester—BA 632 (601), a business and society elective, and two free electives.

Spring Semester—BA 689 (789), a quantitative elective, and two free electives.

If a student is not waived out of any courses, the total requirement is 54 credit hours.

THE MASTER OF SCIENCE IN BUSINESS ADMINISTRATION DEGREE

This is a specialized degree program, permitting concentration in any of the following fields: Accounting, Finance, Marketing Personnel and Industrial Relations, and Urban-Regional Management. The degree requirements in the various concentrations follow:

1. THE M.S.B.A./ACCOUNTING PROGRAM

Prepares students for careers in public accounting, industry, government, and teaching.

In addition to satisfying the foundation requirements described for the MBA program, students not holding an undergraduate degree with a major in accounting shall take courses as prescribed by the School to provide a foundation in accounting appropriate to the student's career interests.

Candidates shall satisfactorily complete 30 semester hours of approved graduate study. An oral comprehensive examination is required.

The following courses are required: BA 731, 734, 735, 641, 650 (750), 680 (780), and 689 (789).

Elective courses are chosen with the approval of the student's adviser. These may be selected so as to lead to specialization in various fields such as the following: managerial accounting, public accounting, information systems, accounting research and teaching, and institutional accounting. With the consent of the student's adviser, special programs can be arranged involving the election of courses in other departments and schools on campus.

The CPA laws in Massachusetts and some other states permit the holder of the Master's degree to substitute the degree for part of the Public Accounting experience required for the certificate.

2. THE M.S.B.A./FINANCE PROGRAM

Prepares students for professional careers in business organizations and financial institutions through breadth and specialization in the field of finance. Stress is on financial principles and techniques with applications in financial management, investments, and financial analysis.

In addition to satisfying the Master's Program core, candidates shall satisfactorily complete a minimum of 27 semester hours of approved graduate study. A minimum of a B average in all finance courses is required for graduation.

In addition to the Master's core courses, the following courses are also required: BA 631 (730), 660 (760), 641 (740), 741, 632 (601), 740 (711), 745 (710),749, and 689 (789).

An additional 9 credits are taken in elective finance or economics courses, chosen with the approval of the student's adviser.

3. THE M.S.B.A./MARKETING PROGRAM

Prepares students for careers in marketing administration, sales management, product management, advertising management, marketing research, and wholesale/retail enterprise.

In addition to satisfying the Master's core requirements, candidates shall satisfactorily complete a minimum of 27 semester hours of approved graduate study.

The following courses are required in addition to the Master's core: 660 (760), 631 (730), 641, 681 (607), 761, 632 (601), 762, 765, 763, 767, 689 (789) and 6 hours of Marketing electives.

4. THE M.S.B.A./PERSONNEL AND INDUSTRIAL RELATIONS PROGRAM

Prepares students for careers in private and public organizations in personnel management, industrial relations, labor relations, and manpower affairs.

In addition to satisfying the foundation requirements described for the M.B.A. program, candidates shall satisfactorily complete a minimum of 27 semester hours of approved graduate study. A comprehensive oral examination is required.

In addition to the Master's core courses the following courses are also required: 660 (740), 641 (740), 689 (789), and an introduction Labor Relations Seminar.

5. THE M.S.B.A./URBAN AND REGIONAL MANAGEMENT PROGRAM

Prepares students for careers in city and state government, community relations departments of business firms, business firms concerned with real estate and/or urban problems, research consulting firms, foundations, non-profit service organizations, and educational institutions.

Flexibility is provided to meet the needs of students with different interests and abilities, and specialization may be developed in such areas as urban economic planning, real estate and housing, transportation planning and policies, research and analysis, and others developed with the advice and approval of the student's adviser.

In addition to satisfying the Master's core requirements, candidates shall satisfactorily complete a minimum of 27 semester hours of approved graduate study.

The following courses are required in addition to the Master's core: BA 720, 721, 722, 723, 728, 729, 660 (760), 681 (607), and a course in Accounting for Public Management. Students also take 12 hours of free electives.

General

The MBA degree program is also offered on an evening basis in Pittsfield, Mass.

Questions concerning any of the graduate degree programs of the School should be addressed to: Director of the Ph.D. Program or Director of Masters Programs, School of Business Administration, University of Massachusetts, Amherst, MA 01003.

Application

Application for Graduate Study should be made directly through the Dean of the Graduate School, as described elsewhere in this Bulletin. A complete application consists of (a) the application form (indicating the *specific* program to which application is being made), (b) two references, (c) two sets of official transcripts of all college-level work, and (d) an official score report on the Graduate Management Admission Test (GMAT). The Graduate Record Examination is not an acceptable substitute for the GMAT. Information on the GMAT may be obtained from the Educational Testing Service, Box 966, Princeton, N.J. 08540. Application deadlines are found elsewhere in this *Bulletin*. Action is taken as soon as possible after receipt by the Graduate School of a complete application.

Standards for admission are consistent with those described earlier in this *Bulletin*. A minimum GMAT score of 500 is required, but a higher score may be necessary depending on the applicant's grade-point-average. Foreign students are not exempt from this requirement. This examination may be taken more than once.

Fellowships, assistantships, and other financial aid from the School of Business Administration normally are not available to foreign students during their first year of study. An application form a foreign student must be accompanied by a statement of financial sufficiency.

All courses carry 3 credits unless otherwise specified.

513 Cobol and Data Base Design
All aspects of COBOL and its application to business data processing. All standard features of COBOL, and special data base features. Prerequisite, Acct 311.

514 Computer Auditing and Control
Those auditing techniques applicable to computer-based information systems. Techniques emphasized: integrated test facilities, snapshots, and generalized audit programs. Prerequisite, Acct 312.

515 Introduction to Simulation Methods
The principles and methods of computer simulation. Each student expected to construct, test, and run a complex simulation model. Prerequisite, BA 210 (110) or equivalent.

523 Financial Reporting III
Consolidation problems of merged firms. Application of interest to accounting problems. Both general price-level and specific price change problems. Problems of foreign operations and firms in financial difficulty. Prerequisite, Acctg 322 (221).

541 Auditing and Control
Basic principles of auditing with emphasis on theory, types of audits, duties and responsibilities of the auditor, audit programs, and methods of internal control. Emphasis on the responsibilities of both the independent and internal auditor. Prerequisites, Acctg 322 (221), and 331 (230).

564 Law of Urban Development
Legal problems generated by the changing urban environment. Topics include the law of race relations, poverty and welfare, land use planning, urban and regional planning. Prerequisite, Gen Bus 260 or equivalent.

572 Advanced Federal Tax Procedures
Emphasis on corporations, partnerships, estates and trusts, gifts and estate taxes, tax planning and research. Prerequisite, Acctg 371(370).

573 International Business Operations
Integrative course in the international dimensions of the various business disciplines. Major part consists of a trip abroad to visit international corporations and institutions in one of the major trading areas of the world. Prerequisite, Senior or graduate student standing and permission of instructors.

575 Massachusetts Taxation
Survey of laws dealing with state and local taxation. Emphasized are: state income tax, corporation excise tax, taxation of interstate business enterprises, comparisons with federal tax laws, property taxes, sales and use taxes, death taxes. Prerequisite, Acct 221.
Credit, 1.

581 C.P.A. Problems
Solution of problems for CPA examinations. Topics include: proper treatment of assets, liabilities, and ownership equity; partnerships; consolidations; funds and cash flow; cost accounting and management uses of accounting information; and governmental accounting. Prerequisite, Acctg 523(620).

582 International Accounting
Current accounting principles and practices in foreign countries. Includes accounting problems encountered by multi-national corporations and trends towards the establishment of international accounting and auditing standards. Prerequisite, Acct 322(221).

583 CPA Law
Legal problems most commonly encountered by certified public accountants with attention to the subjects currently being included in C.P.A. examinations. Prerequisite, Gen Bus 260. Limited to Accounting majors.

600 (700) Special Problems in Business Administration
Independent study and research on selected problems in business administration. Permission of instructor and program director required.
Credit, 3-6 each semester.

603 Law and Government
An introduction to nature, functions, and limitations of state and non-state law-government systems, industrial jurisprudence, and politico-legal environment of business.

630 (608) Accounting for Decision Making
Principles underlying preparation of financial statements and the development and application of accounting data for planning and control.

631 (730) Managerial Accounting and Control
Production and use of accounting and other quantitative data for decision making related to planning and control. Prerequisite, BA 630 (608).

632 (601) Computer & Information Systems
Current and potential management usage of computers, basic computer programming; and computer-based information systems in management decision-making.

640 (609) Financial Analysis and Decisions
Basic concepts, principles and practices involved in financing businesses and in maintaining the efficient operation of the firm. Framework for analyzing the savings-investment and other financial decisions. Both theory and techniques applicable to financial problem solving.

641 (740) Financial Management
Internal financial problems of firms; capital budgeting, cost of capital, dividend policy, rate of return, and the financial aspects of growth. Readings and cases. 640 (609)

644 (602) Managerial Economics
Microeconomic analysis and application to business decisions such as: cost and profit analysis; demand and pricing; investment analysis and capital budgeting; and economic forecasting.

650 (750) Business Data Analysis
Statistical methods employed in collection, analysis, and interpretation of data. Business applications of sampling, analysis of variance, experimental design, regression analysis, and forecasting models.

660 (760) Marketing Management
Marketing concepts of planning, organization, control, and decision-making from the viewpoint of the business executive. Stress on tools available for analysis and control of marketing activities.

680 (780) Organizational Behavior
Organizational and interpersonal factors related to effective organizational performance. Emphasis on the impact of managerial actions on organizational behavior. Prerequisite, BA 681

681 (607) Organizational Management
Analysis of fundamental psychological and sociological phenomena that underlie group behavior; exploration of organization processes including leadership, communication, and change; analysis of classical decision and system theory.

685 (770) Operations Management
Analysis of production problems and solution techniques. Work-flow processes, the technology of materials and equipment, and control of the availability, quality, cost, and price of products and resources.

689 (789) Organizational Planning and Strategy
Capstone course requiring application of knowledge, theories, and techniques derived from previous courses, using integrative cases and empirical observations to formulate improved policies and plans. Prerequisites, 630 (608), 640 (609), 644 (602), 650 (750), 680 (780).

699 Master's Thesis
Credit, 9.

720 Research Methods in Public Management
Fundamental concepts of the purpose and practice of scientific research in problems related to the management of urban and regional resources. Includes formulation of research design and objectives, collecting, processing, and analyzing socio-economic data. Prerequisite, 650 (750).

721 Systems Approach to Urban Problems
The fundamentals of systems theory and its application to urban problems. Various social-economic urban problems, and how systems theory can be utilized in effective solutions. Prerequisite, advanced graduate standing or permission of instructor.

722 Economics of Urban Management
An analysis of the dimensions of urban growth and change. Reasons behind and problems arising from economic growth and stagnation of urban areas. Prerequisite, 644 (602).

723 Urban Budgeting and Public Finance
The theory, technique and administration of public finance and budgeting applied to management problems in metropolitan government. Prerequisite, BA 640 (609).

724 Real Estate Finance
A problem-oriented course; financial practices, institutions, and methods of analysis related to real-estate investment. Topics include investment theory, taxation, and government programs. Prerequisite, 644 (609).

725 Housing Analysis
Techniques used in analyzing local housing markets; urban housing problems and national housing programs and policies. Prerequisite, BA 722.

726 Metropolitan Transportation
Analysis of economic, social, and technological developments on demand and supply factors for the movement of people and goods within urban areas. Determination of the optimal mix of modal facilities to maximize the total transport resources. Prerequisite, 644 (609).

727 Land and the Development of Communities
The urban development process from a business and economic viewpoint. Topics include economic, legal, social, political, and administrative aspects of the real estate market. Prerequisite, BA 722.

728 Urban Organization and Management
Integrates and synthesizes the major policy themes in public management covered in previous courses in the urban and regional management program. Prerequisites, BA 720, 722, and 723.

729 Advanced Topics in Urban and Regional Management
Seminar in the problems of regional economic development, central-place theory, and regional econometric models. Prerequisites, BA 720, 722, and 723.

731 Advanced Managerial Accounting
An advanced course in the use of accounting and other quantitative measurements for business planning, decision-making, and performance-evaluation. Prerequisite, Graduate Accounting status or permission of instructor.

732 Business Applications of the Computer
Intermediate and advanced computer programming applied to business problems. The COBOL language treated in depth, related to accounting problems. Also surveys the Computer application in areas such as simulation, PERT, and business gaming. Prerequisites, BA 632, (601) or COINS 122.

733 Accounting Information Systems
Accounting systems and their relationship to other business information systems. Prerequisite, graduate accounting status or permission of instructor.

734 Accounting Theory
Agreed and controversial criteria for collecting and reporting financial information. Examination of the professional literature. Prerequisite, graduate accounting status or permission of instructor.

735 Contemporary Accounting Issues
Investigation and analysis of selected contemporary issues in accounting with presentation of individual findings through discussion and reports. Prerequisite, graduate accounting status or permission of instructor.

736 Taxes and Business Decisions
Implications of current tax laws and policies for business management decisions. Emphasizes the social impact of tax expenditure and its relevancy for the development of economic incentives.

737 Research and Planning in Federal Taxes
Advanced research in federal income and estate tax planning; emphasis on historic and current developments in analytical tax planning techniques and their implications.

739 Advanced Topics in Accounting
Seminar in the study and evaluation of current literature in accounting and related fields. Prerequisite, advanced graduate standing in accounting or permission of instructor.

740 Money, Capital, Markets and Institutions
The impact of financial intermediaries on U.S. capital and money markets. Analysis of market efficiency, structure, and performance, and the role of monetary, fiscal, and debt-management policy. Prerequisites, Fin. 310 (210) or Econ 311 (211).

741 Investments
Development of a general theory of investment management and its application to individual and institutional investors; computer portfolio management. Prerequisite, BA 640 (609).

742 Growth, Mergers, and Acquisitions
An analysis of the financial problems and implications of corporate growth. Mergers and acquisitions as instruments for achieving growth. Text and cases. Prerequisite, BA 641 (740).

743 International Finance
Introduction to foreign money and capital markets and international financial institutions: financial planning for corporations with overseas operations; analysis of sources and uses of corporate funds abroad; criteria for choice among alternative foreign investments. A text /case approach. Prerequisites, Fin 320 (210) or Econ (211), and BA 640 (609).

744 Advanced Managerial Economics
Application of microeconomic analysis to typical business decisions such as: cost and profit analysis; demand and pricing, investment analysis, and capital budgeting; and the uses of economic forecasting in business decisions.

745 Financial Models
An analytical approach to financial management. Emphasis on theoretical topics of financial decision-making. Through the use of mathematical, statistical, and computer simulation methods, various financial decision-making models are made. Prerequisites, BA 632 (601), 640 609).

746 Portfolio Theory
Factors affecting investment values o securities, and methods used in thei analysis. Prerequisites, Fin 320 (220) o BA 741 (709).

747 Theory of Financial Markets
An in-depth study of portfolio analysi and stochastic processes in securit markets. Emphasis on quantitative solu tion techniques and testing procedures.

749 Seminar in Finance
Seminar in current issues and develop ments in corporation finance, invest ments, and financial institutions and markets; emphasis on application of analytical techniques and decision models. Prerequisite, advanced graduate standing in finance or permission of instructor.

751 Management Science Applications in Business
Application of probability theory (discrete and continuous) stochastic process, linear, quadratic and dynamic programming, waiting lines, sequencing, and computer simulation models to selected problems in management science. Prerequisites, BA 632 (601).

752 Deterministic Models in Management Science
Introduction to deterministic models and techniques relevant to business problems. Topics include Kuhn-Tucker theory, mathematical programming, difference equations and discrete and continuous maximum principles. Prerequisite, permission of instructor.

753 Probabilistic Models in Management Science
Introduction to probabilistic models and statistical techniques relevant to the understanding of business problems. Prerequisite, permission of instructor.

754 Business Logistics
The total cost concept in the management of a business enterprise. Problems in inventory determination, location theory and practice, transportation and warehousing alternatives with the objective of maximizing customer service at least cost. A case and problem approach.

755 Dynamic Modeling of Complex Systems
Principles of feedback behavior and systems dynamics. Emphasizes the building of computer simulation models and the analysis of their dynamic behavior in

complex industrial, educational, social and ecological organization systems. Prerequisite, permission of instructor.

756 Game Theory
Zero and non-zero games including theory, solution technique; experimental literature based upon game theory. Prerequisites, BA 752 (758) and 753 (759).

757 Management Science Techniques in Environmental Planning
Introduction to mathematical and computer methods and techniques useful in the description and control of environmental systems. Large scale computer models used to demonstrate the technique in analysis of selected representative problems. Prerequisite, permission of instructor.

758 Management Science in Planning and Control
Application of management science to problems of design testing and evaluation of facilities usage, manpower organization, and information procedures actually employed by business firms or government agencies. Prerequisite, advanced graduate standing in management science or permission of instructor.

761 Consumer Behavior
The social, psychological, and economic roles of the consumer in decision-making and market behavior. The external and internal determinants of buyer behavior.

762 Research Methods in Marketing
Applicability and utilization of quantitative research techniques to marketing problems and processes. Prerequisites, BA 650 (750) and 660 (760).

763 Demand Analysis
An analytical examination of the application of management-science techniques to marketing phenomena. Examines the relationship of the behavioral and quantitative sciences to marketing. Prerequisites, 650 (750) and 660 (760).

764 International Marketing Management
The impact of political, social, economic and cultural forces of divergent societies upon the managerial decision-making process in international marketing operations. Problems associated with the design of marketing strategy. Prerequisite, BA 760 (722).

765 Product Management
The analytical, decision-making, and planning tasks of marketing and product management in competitive environments. Includes formulation of product-market strategies, new product development, product-line deletions, and formulation of marketing plans and budgets. Prerequisite, 660 (760).

766 Pricing Techniques for Managers
Combines economic and marketing principles with accounting and financial information needed for analyzing pricing options within legal constraints. An integrative framework for making pricing decisions; social issues related to pricing practices. Prerequisite, 660 (760).

767 Management of Marketing Communications
The development of effective marketing communication stategies based on an understanding of the characteristics of audiences. Integrates conceptual material from communication theory as applied to advertising and other promotional problems. Prerequisite, BA 660 (760).

768 Distribution Systems Management
Agents, functions, and relationships involved in the distribution of goods and services in an advanced economy. Development of retailer and manufacturer distribution strategies, the legal and socio-economic implications of various distribution systems, and recent distribution trends. Prerequisite, BA 660 (760).

769 Advanced Topics in Marketing
Seminar in current issues and developments in the field of marketing, including trends in public policy, new research applications, and techniques for formulating marketing strategies. Prerequisite, advanced graduate standing in marketing or permission of instructor.

772 Compensation Administration
Direct and indirect compensation; wage and salary criteria, policy, and methods; performance appraisal systems; incentive and nonincentive systems; payment methods for managers and professionals.

773 Labor Arbitration
The process and dispute-settlement criteria by which arbitrators interpret collective bargaining agreements and determine the contractual rights and responsibilities of managements and unions in both the private and public sectors. Extensive use of arbitration cases to illustrate areas and principles of arbitral review.

775 (885) Manpower Planning
Investigation and comparative evaluation of systems of manpower planning both at the corporate and national levels including systematic manpower inventory appraisal.

776 (886) Legal Aspects of Industrial and Labor Relations
The historical evolution of national labor policy from its English origin in 1349 through modern experiences. Common law, statutory, and constitutional developments of labor policy against a historical, political and economic background.

778 Advanced Topics in Personnel Management
Seminar on personnel models, staffing, human resources planning, training and development, compensation administration, employee services, personnel research, equal employment opportunity and other current topics. Prerequisite, advanced graduate standing or permission of instructor.

779 Advanced Topics in Industrial Relations
Reading seminar in the contemporary literature of the industrial relations field; emphasis on research related to major current problems and developments in the field. A major research paper is required. Prerequisite, advanced graduate standing or permission of instructor.

781 Behavioral Science Models in Business
Behavioral-science theories and models as they apply to the behavioral problems of enterprises. Prerequisite, BA 680 (780).

782 Organization Development
The role of the organization development consultant and the cycle of events involved in assisting clients. Emphasizes development of skills in problem diagnosis, formulation of solutions, and managing organizational change. Prerequisite, BA 680 (780).

783 Business and Its Environment
The relationship between business firms and the various environments in which they operate; examines the environmental impact of business decisions, issues related to the social accountability of firms, and the concepts of cost-benefit analysis. Prerequisite, advanced graduate standing or permission of instructor.

784 (771) Risk Management
Analysis of risks to which a business is exposed, determination of methods of pro-

viding protection, including loss-prevention techniques, risk retention, self-insurance, and use of commercial insurance. Case and field studies.

801 Philosophical Foundations in Business Administration
Conceptual foundations of business administration in context of social and economic philosophy. Topics include corporate objectives and goal models, theories of organization, and social responsibilities of corporate management.

802 Individual Behavior in Business Administration
Selection of relevant findings in the behavioral and social sciences regarding individual behavior in organizations.
Mr. Butterfield, Mr. Leifer

803 Group Behavior in Business Administration
Selection of relevant findings in the behavioral and social sciences regarding group behavior in organizations.
Mr. Finch, Mr. Litterer

804 Statistical Analysis for Business Research
Analysis of statistical theory and techniques to business research. Probability, distribution theory, multivariate regression analysis, and statistical principles of experimental design.
Mr. Abranovic, Mr. Frederick

805 Multivariate Methods for Business Research
Techniques of multivariate statistical analysis as applied to business research. Analysis of covariance, discriminant analysis, canonical correlation, multivariate analysis of variance, factor analysis.
Mr. Dillon, Mr. Frederick

811 Business History
American business institutions as they have evolved through time. The impact of social and economic processes on their development and operations.

812 Jurisprudence and Business
Social-scientific and philosophical theories of law; the systems, functions, processes and limits of law, applications to the business organization in its external and internal affairs. Mr. Hartzler

815 International Aspects of Business Administration
The basis of international division of labor, the history of international business policy, and the cultural differences that affect the management of international business enterprises. Mr. Liander

821,822 Management Science I, II
Selected topics of current significance in mathematical, statistical, computer, and behavioral approaches to management and administration. Either semester may be elected independently. Mr. Balintfy
Credit, 3-6

823 Mathematical Programming
Application of linear, quadratic, integer, and dynamic programming models and algorithms in pricing and resource allocation by firms; sensitivity analysis and parametric programming.
Mr. Balintfy

824 Decision Models in Business Administration
Application of probability theory and selected topics in mathematics to stochastic and deterministic managerial decision models. Mr. Kaczka

825 Seminar in Management Science
A presentation of journal reports on business topics utilizing a quantitative approach.

831 Long Range Business Planning
Advanced and intensive study of long-range planning practices in business firms. Emphasis on the planning process in relation to other managerial processes on the most recent methods of reducing risk and uncertainty in long-term planning strategies. Mr. Michael

832 Dynamics of Corporate Organization
Changes in corporate organization as adaptive responses to challenges and constraints imposed upon the corporation by variations in endogenous and exogenous factors. Mr. Michael

833 Business Organization and Administrative Theory
Investigation and critique of contemporary theories of organization, administration, and decision, with a view of their scientific support and practicality for increasing rationality, prediction, and control in business administration.
Mr. Butterfield, Mr. Litterer

834 Management Systems: Theory, Analysis and Design
Review of systems with stress on normative behavioral systems. Designing, implementing, operating, maintaining, and controlling such systems. The organization viewed as a total system. The student designs a behavioral system as a class project. Mr. Young

841 Management Information Theory
Theories and applications of management information system in the context of total servomechanism system concept. Topics include the generation, organization, transformation, dissemination, codification, discrimination, and economics of information. Mr. Hare

842 Management Control Systems
The function of total systems theory which provides direction in attaining planned objectives of the system. Various theories of control and measurement in relation to organization resources and information requirements. Mr. Hare

851 Theory and Science in Marketing
The state of marketing knowledge; the content and validity of marketing thought, theories, and other substantive and methodological contributions to the development of marketing science.
Mr. Frederick

852 Behavioral and Social Science Issues in Marketing
Materials from the behavioral and social sciences that have been used to expand the understanding of marketing phenomena.

861 Advanced Accounting Theory I
The origin, development, and current status of financial accounting theory. Existing literature.
Mr. Backer, Mr. Simpson

862 Advanced Accounting Theory II
The origin, development and current status of managerial accounting theory. Existing literature.
Mr. Backer, Mr. Dennler

871 Micro Theory of Finance
Optimum financial policies and decisions of nonfinancial firms. Theory of competition and optimum asset management of financial firms. Mr. Branch

872 Financial Intermediaries and Markets
Financial intermediaries and financial markets and the development of a theory of financial intermediation as it relates to growth, employment, and price levels.
Mr. Finnerty

881 Production Management Analysis
Application of mathematical and statistical methods and models for produc-

tion management decisions and problem analyses and for managerial planning and control. Mr. McGarrah

882 Production Management Policy
Formulation and administration and production and operations management policies with reference to developing an effective total business strategy.
Mr. McGarrah

892 Advanced Topics in Business Administration
An advanced topic section in each general or functional field of study. Investigation of current literature and research effort in these areas.
Credit, 1-6.

896 Independent Study in Business Administration
Individualized secondary or applied research in special areas of guided doctoral-level investigation. Permission of instructor required.
Credit, 3-6.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

W. Leigh Short, *Professor and Head of the Department of Chemical Engineering,* B.S., University of Alberta, 1956; M.S., 1957; Ph.D., University of Michigan, 1962.

Kenneth D. Cashin, *Professor,* B.S., Worcester Polytechnic Institute, 1947; M.S., 1948; Ph.D., Rensselaer Polytechnic Institute, 1955.

David C. Chappelear, *Adjunct Associate Professor,* B.E., Yale, 1953; Ph.D., Princeton, 1960.

Michael F. Doherty, *Assistant Professor,* B.S., Imperial College, 1973; Ph.D., Cambridge, 1976.

James M. Douglas, *Professor,* B.S., Johns Hopkins, 1954; Ph.D., Delaware, 1960.

John W. Eldridge, *Professor,* B.S., Maine, 1942; M.S., Syracuse, 1946; Ph.D., Minnesota, 1949.

Paul F. Greenfield, *Assistant Professor,* B.E., New South Wales, 1969; Ph.D.,1973.

Robert S. Kirk, *Associate Professor,* B.S., Illinois Institute of Technology, 1943; M.S., 1943; Ph.D., University of Wisconsin, 1948.

James R. Kittrell, *Associate Professor,* B.S., Oklahoma State University, 1962; M.S.,University of Wisconsin, 1963; Ph.D.,1966.

Robert L. Laurence, *Professor,* B.S., Massachusetts Institute of Technology, 1957; M.S., Rhode Island, 1960; Ph.D., Northwestern, 1965.

Robert W. Lenz, *Professor,* B.S., Lehigh University, 1949; M.S., Institute of Textile Technology, 1951; Ph.D., State University of New York, 1956.

E. Ernest Lindsey, *Professor,* B.S., Georgia Institute of Technology, 1936; Ph.D., Yale, 1940.

Thomas J. McAvoy, *Associate Professor,* B.S., Brooklyn Polytechnic Institute, 1961; Ph.D., Princeton, 1964.

Stanley Middleman, *Professor,* B.S., Johns Hopkins, 1958; D.Eng., 1961.

Marcel Vanpee, *Professor,* B.S., M.S., University of Louvain, Belgium; Ph.D., 1940.

The graduate program in chemical engineering emphasizes advanced study in engineering fundamentals rather than specific technological applications. To be admitted to full graduate status in the field, either of the following requirements should be met:

1. Applicant must have Bachelor's degree in chemical engineering from a recognized school, or

2. Applicant must show satisfactory academic training or demonstrate proficiency in these subjects as a minimum:

Mathematics: through Calculus.
Chemistry: through Organic and Physical.
Engineering Mechanics: Statics, Strength of Materials, Dynamics.
Chemical Engineering: Stoichiometry, Unit Operations.
Thermodynamics (including thermodynamics of chemical change).

REQUIREMENTS FOR THE PH.D. DEGREE

In the Chemical Engineering Department, the Ph.D. candidate is required to fulfill the foreign language requirement or to successfully complete (with a grade of B or better) Eng. 451 (634), Advanced Technical Writing. The Department does not impose any other requirements beyond those established by the Graduate School.

REQUIREMENTS FOR THE M.S. DEGREE

1. Ch E 699, Thesis, six to 10 credits (may be research or design). If a student elects a non-experimental thesis, he must demonstrate experimental proficiency by other evidence such as from industrial experience.

2. At least 12 credits of Chemical Engineering 600 level courses. Ch E 562 may also be used toward meeting this requirement (*i.e.*, in lieu of three of these 12 credits). One of the courses must be Ch E 641.

3. Additional graduate-credit courses, chosen according to the student's interests from the fields of engineering science, mathematics, and the humanities, to constitute the total requirement of 30 credits for the M.S. degree.

4. University-wide requirements as described in the front section of this *Bulletin*.

All courses carry 3 credits unless otherwise specified.

561 Chemical Engineering Analysis I
Application of mathematical techniques to chemical engineering problems. Em-

phasis on analysis of problems and the devising of satisfactory mathematical models. Machine computation with digital and analog devices. Prerequisites, Ch E 333.

562 Chemical Engineering Analysis II
Mathematical analysis of chemical engineering problems continued. Topics include: matrix methods, vector analysis, calculus of finite differences, numerical solution of ordinary and partial differential equations, complex variables and LaPlace transformations. Emphasis on applying these techniques to real chemical engineering processes and on the physical and mathematical interpretation of the results. Prerequisite, Ch E 561.

565 Optimization
Fundamental ideas and application of optimization techniques in operation and design. Topics include: extrema of functions, effect of constraints, LaGrange multipliers, introduction to linear programming, geometric programming and dynamic programming. Prerequisite, Math 187.

566 Optimization Using Variational Techniques
Application of the calculus of variations, Pontyragin's maximum principle, and dynamic programming to the design and control of chemical process equipment. Systems described by both ordinary and partial differential equations are considered. Topics include optimal reactor design, the synthesis of optimal control systems, and optimal periodic operation of processing units. Prerequisite, Math 187.

571 Air Pollution Control Processes
Introduction to the techniques of air pollution control; particulate removal, wet and dry scrubbing processes, removal of selected species from gases (*e.g.*, sulfur dioxide). Prerequisites, Freshman chemistry and permission of instructor.

621 Chemical Engineering Thermodynamics I
Review of the fundamental laws of thermodynamics, P-V-T relations of fluids, thermodynamic functions, fluid flow, compression and expansion of gases, liquefaction and separation of gases. Prerequisite, Ch E 226 or equivalent.

622 Chemical Engineering Thermodynamics II
Phase equilibria and chemical reaction equilibria and their applications in chemical processing. Prerequisites, Chem 586 and Ch E 621.
Credit, 2.

625 Chemical Reactor Design
Principles of chemical reaction kinetics and their application to industrial chemical processes. Systems homogeneous and heterogeneous, batch and flow, catalyzed and uncatalyzed, isothermal and adiabatic. Prerequisites, Chem 586, Math 186 or 541 or equivalent.

626 Advanced Kinetics and Reactor Design
Topics from the recent literature including reactions in gradients, catalysis and optimization of chemical reactors by methods of dynamic programming. Prerequisites, Ch E 625 and Ch E 561 or equivalent.

631 Chemical Engineering Fluid Mechanics
Introduction to advanced work in chemical engineering fluid mechanics. Viscosity, momentum balances (Navier-Stokes equation),friction, turbulence, the motion of suspended solids in fluids, and non-Newtonian fluids. Prerequisite, Ch E 333.

632 Chemical Engineering Heat Transfer
Introduction to advanced work in heat transfer as applied to chemical engineering. Thermal diffusivity; energy balances; analytical, graphical, and numerical solutions to steady and transient problems; convection and radiation. Prerequisite, Ch E 631.
Credit, 2

633 Mass Transfer
A unified treatment of mass transport phenomena, emphasizing scientific principles. Diffusional phenomena, convective mass transfer and application of integral averaging techniques to mass transfer. Prerequisite, Ch E 631.
Credit, 2.

641 Advanced Process Design I
Solution of advanced process design problems which require the use of principles covered in previous courses. The problems may be conceptual designs, economic decision-making in process design or engineering design calculations for a specific process. Prerequisites, Ch E 333 and 445.

661 Chemical Engineering Analysis III
Mathematical analysis of chemical engineering problems continued. Advanced matrix techniques, perturbatic analysis, and analytical solutions to pa tial differential equations. Prerequisit Ch E 562.

699 Master's Thesis
A theoretical or experimental study some chemical engineering problem Credit determined by the work don and by agreement with the Departmer and the Graduate Thesis Committee.
Credit, 6-10.

731 Advanced Mass Transfer
Mass transfer with emphasis on theory diffusion. Molecular diffusion, mult component diffusion, convective ma transfer, diffusion with chemical rea tion and chromatographic separation Prerequisites, Ch E 562 and 633.

747 Advanced Process Control
Theory of closed loop control. Use LaPlace transforms and transfer func tions; stability analysis, root-locus, Bod diagrams; frequency response and tim response in controller design. Prere quisite, Ch E 446 or equivalent.

748 Process Dynamics
Translating process performance int mathematical form, application to cor trol system design. Fluid systems, the mal systems, mass transfer systems (disti lation, drying), reaction kinetics. Prere quisite, Ch E 747.

749 Advanced Process Design II
Continuation of Advanced Process De sign I. Emphasis on more complex de signs and the uses of mathematica models or optimization techniques in th solution of these design problems. Prere quisites, Ch E 641.
Credit, 1-3.

755 Combustion Phenomena
Fundamentals of combustion. Combus tion thermodynamics, Rankin-Hugonio relations, propagation of explosions, la minar flames, turbulent flames, detona tions, radiation processes, kinetics o combustion. Prerequisites, Ch E 338 an 420.

757 Polymer Rheology
Definition and measurement of rheo logical properties; continuum mechanic and constitutive equations; molecula theories of polymer deformation; cor relation and interrelation of materia functions. Relation of the various ap proaches taken in describing the viscou and viscoelastic properties of polymers

evaluation of the utility of these approaches, and indication of the role of modern rheology in the characterization and processing of polymers. Prerequisite, Ch E 631.

765 Applied Optimization in Chemical Engineering
Topics include non-linear programming, (Kuhn-Tucker theorem, quadratic programming), geometric programming, calculus of variations, dynamic programming, Pontyragin's Maximum Principle. Prerequisite, Ch E 565.

767 Analog-Hybrid Simulation in Chemical Engineering
Topics in analog-hybrid simulation useful to students beginning research. Linear and non-linear components, magnitude and time scaling, digital logic, hybrid operation.

890 Advanced Topics in Chemical Engineering
An in-depth exploration of the advanced aspects of an area pertinent to chemical engineering. Prerequisites, Ch E 562, 632, and 633.
Credit, 1-3

891 Advanced Topics in Transport Phenomena
An in-depth exploration of a particular aspect of advanced transport-phenomena. Prerequisites, Ch E 562, 632, and 633.
Credit, 1-3.

892 Advanced Topics in Thermodynamics
An intensive consideration of current literature and research in a particular area of thermodynamics. Prerequisite, Ch E 622.
Credit, 1-3.

893 Advanced Topics in Kinetics
Selected topics from the current literature. Prerequisite, Ch E 625.
Credit, 1-3.

894 Advanced Topics in Process Dynamics and Control
Topics from the current literature, discussed in depth. Prerequisite, permission of instructor.
Credit, 1-3.

895 Advanced Topics in Chemical Engineering Analysis
For advanced graduate students in chemical engineering. Application of mathematics to problems in chemical engineering. Specific topics vary according to instructor and student interests. Prerequisites, Ch E 562, 661 or permission of instructor.
Credit, 1-3.

899 Doctoral Dissertation
A theoretical or experimental study of a chemical engineering problem. Credit determined by the work done and by agreement with the Department and the Graduate Thesis Committee.
Credit, 18.

Graduate Faculty

Ronald D. Archer, *Professor and Head of the Department of Chemistry,* B.S., Illinois State at Normal, 1953; M.S., 1954; Ph.D., Illinois, 1959.

George R. Richason, Jr., *Professor and Associate Head of the Department of Chemistry,* B.S., Massachusetts, 1937; M.S., 1939.

George W. Cannon, *Professor and Graduate Program Director,* B.A., Dakota Wesleyan, 1939; M.A., Illinois, 1941; Ph.D., 1943.

Ramon M. Barnes, *Associate Professor,* B.S., Oregon State, 1962; M.A., Columbia, 1963; Ph.D., Illinois, 1966.

John F. Brandts, *Professor,* B.A., Miami, 1956; Ph.D., Minnesota, 1961.

Paul E. Cade, *Professor,* B.S., Texas, 1954; Ph.D., Wisconsin, 1961.

Louis A. Carpino, *Professor,* B.S., Iowa State, 1950; Illinois, 1951; Ph.D., 1953.

John A. Chandler, *Associate Professor,* B.S., Ohio, 1955; M.S., Illinois, 1958; Ph.D., 1959.

James C.W. Chien, *Professor,* B.S., St. John's, 1949; B.A., Wayland College, 1950; M.S., Kentucky, 1951; Ph.D., Wisconsin, 1954.

David J. Curran, *Associate Professor,* B.S., Massachusetts, 1953; M.A., Boston College, 1958; Ph.D., Illinois, 1961.

Gregory M. Dabkowski, *Adjunct Assistant Professor,* B.S., Central Connecticut State, 1969; M.S., Massachusetts, 1972; Ph.D., 1975.

John W. George, *Associate Professor,* B.A., Princeton, 1948; M.A., North Carolina, 1950; Ph.D., M.I.T., 1958.

Stephen S. Hixson, *Associate Professor,* B.A., Pennsylvania, 1965; Ph.D., Wisconsin, 1970.

Robert R. Holmes, *Professor,* B.S., Illinois Institute of Technology, 1950; Ph.D., Purdue, 1954.

Clifford P. Lillya, *Professor,* B.A., Kalamazoo, 1959; Ph.D., Harvard, 1964.

William J. MacKnight, *Professor,* B.S., Rochester, 1958; M.A. Princeton, 1963; Ph.D., 1964.

William E. McEwen, *Professor,* B.A., Columbia, 1944; M.A., 1945; Ph.D., 1947.

Earl J. McWhorter, *Associate Professor,* B.S., Rensselaer Polytechnic Institute, 1950; Ph.D., Cornell, 1955.

Barbara J. Kalbacher, *Assistant Professor,* A.B., Catholic University, 1968; M.S., Cleveland State University, 1970; Ph.D., SUNY at Buffalo, 1974.

Bernard Miller, *Professor,* B.S., C.C.N.Y., 1951; M.A., Columbia, 1953; Ph.D., 1955.

John L. Ragle, *Professor,* B.S., California at Berkeley, 1954; Ph.D., State College of Washington, 1957.

Marvin D. Rausch, *Professor,* B.S., Kansas, 1952; Ph.D., 1955.

Marion B. Rhodes, *Assistant Professor,* B.A., Connecticut, 1958: M.S., Massachusetts, 1960; Ph.D., 1966.

John E. Roberts, *Professor,* B.S., New Hampshire, 1942; M.S., 1944; Ph.D., Cornell, 1947.

Robert L. Rowell, *Associate Professor,* B.S., State Teachers College at Bridgewater, Mass., 1954; M.S., Boston College, 1956; Ph.D., Indiana, 1960.

Sidney Siggia, *Professor,* B.S., Queens College, 1942; M.S., Brooklyn Polytechnic Institute, 1943; Ph.D., 1944.

Marian T. Stankovich, *Assistant Professor,* B.A., University of St. Thomas, 1970; Ph.D., Texas at Austin, 1975.

Richard S. Stein, *Professor,* B.S., Brooklyn Polytechnic Institute, 1945; M.S., Princeton, 1948; Ph.D., 1949.

Thomas R. Stengle, *Professor,* B.S., Franklin & Marshall, 1951; M.S., Michigan, 1953; Ph.D., 1961.

Howard D. Stidham, *Associate Professor,* B.S., Trinity College, 1950; Ph.D., Massachusetts Institute of Technology,1955.

Peter C. Uden, *Associate Professor,* B.S., Bristol, 1961; Ph.D., 1964.

Robert M. Williams, *Assistant Professor,* B.A., Dartmouth, 1951; M.S., New Hampshire, 1953; Ph.D., Iowa State, 1958.

John S. Wood, *Professor,* B.A., Keele, 1958; Ph.D., Manchester, 1962.

Alfred M. Wynne, *Associate Professor,* B.S., Maine, 1952; M.S., 1955; Ph.D., Massachusetts, 1970.

Oliver T. Zajicek, *Associate Professor,* B.S., Baldwin-Wallace, 1950; M.S., Wayne State, 1958; Ph.D., 1961.

The chemistry department offers programs leading to the M.S. and Ph.D. degrees in analytical, inorganic, organic, and physical chemistry and in interdisciplinary areas. In addition, the department actively participates in the Five College Ph.D. Program.

During their first year doctoral students are expected to complete qualifying requirements in the four areas of chemistry (or certain cognate areas). Qualification requires the demonstration of competence at the advanced undergraduate or beginning graduate level. It can be accomplished by formal course work or by examination. Students fulfill the Ph.D. comprehensive examination requirement by passing a series of cumulative examinations in their specialty. All doctoral candidates are required to pass a departmental examination showing that they have a reading knowledge of German, Russian, or Japanese sufficient to understand journal literature. French is acceptable in certain areas of specialization.

In order to allow each student's program to be tailored as closely as possible to individual needs, the department has few formal course requirements for the doctoral degree. On entrance, the student is assigned an adviser who helps plan the initial program. After the student has selected a research topic, the research adviser helps plan the remainder of the course program.

M.S. degree candidates must qualify in three areas in their first year. Thirty credits of graduate work must be presented; 10 of these are awarded for the thesis. The course of study is planned by the student and the adviser. No language or cumulative examinations are required. An acceptable research thesis must be presented and defended.

The M.S. degree may be awarded to doctoral candidates after they have satisfied all Ph.D. qualifying and cumulative examination requirements and requirements of the Graduate School.

Students accepted into graduate programs are expected to have undergraduate preparation comparable to that recommended by the American Chemical Society. Those who have not fulfilled these requirements may be admitted as provisional students until the deficiencies have been removed. All entering graduate students take placement examinations in the week prior to the beginning of the first week of graduate study. These are designed to evaluate the student's preparation and assist in planning a course of study. When a student elects an interdisciplinary research problem, an individual program of courses and examination requirements may be worked out to satisfy special needs. For example, the chemistry department has a close association with the Polymer Science and Engineering Program and many graduate students pursue interdisciplinary work in the two areas.

The Chemistry Department also offers a program of study in chemistry leading to the degree of Master of Arts in Teaching (M.A.T.). The primary aim of the program is to prepare those who do not have adequate or appropriate classroom teaching experience—but who hold a B.A. or B.S. degree—to become effective classroom teachers either at the secondary school or the community/junior college level. The M.A.T. program leads to a professional degree which combines essential aspects of the Master of Education with the academic tradition of the Master of Science degree. It simultaneously assures balanced competence in a) field of chemistry, and b) daily classroom performance of the teacher's role.

All courses carry 3 credits unless otherwise specified.

503 Laboratory Glass Blowing for Scientists.
Technique of fabrication and repair of glass apparatus useful in research. Prerequisite, permission of instructor. Three 1-hour laboratory periods.
Credit, 0.

504 Radiochemistry
Character of atomic nuclei, nuclear reactions, radiation and its detection, and techniques for the study and utilization of radionuclides. Three class hours, one 3-hour laboratory period. Prerequisite, Chem 210 or 127 or permission of instructor.
Credit, 4.

513 Instrumental Analysis
Theory and practice of modern analyses utilizing optical, electrical, and thermal properties. Selected modern separation methods may be included. Two class hours, one 4-hour laboratory period. Prerequisites, Chem 210 and 586.

515 Theory of Analytical Processes
Topics such as chemical equilibrium, precipitate formation, chelating agents, multistage separation, etc., having general applicability in chemical investigations. Three class hours, laboratory optional (1 extra credit). Prerequisites, Chem 166 and 586.
Credit, 3-4.

516 Chemical Microscopy
Optics of the microscope, micrometry, microscopic study of fibers, crystals, physiochemical phenomena, qualitative analysis, and an introduction to electron microscopy. Prerequisite, Chem 513 or permission of instructor. Two 3-hour laboratory periods.
Credit, 2

517 Microquantitative Analysis
Quantitative determination of carbon, hydrogen, oxygen, nitrogen, sulfur, halogens, phosphorous. Both organic and inorganic compounds included in microgram scale analyses. Prerequisite, Chem 513 or permission of instructor. One 4-hour laboratory period.
Credit, 1.

519 Electronics Instrumentation for Scientists
Laboratory-oriented course. Begins with electronic principles and leads through servo-systems, operational amplifiers, digital circuits, and other measurement devices. Two 3-hour laboratory periods. Prerequisites, one year of physics and permission of instructor.

546 Theoretical Inorganic Chemistry
Survey of theoretical aspects of inorganic chemistry chosen from such topics as electronic structure and its relation to periodic properties, chemical bonding, molecular structure, coordination chemistry, acid-base theory, non-aqueous systems, and reaction mechanisms. Prerequisite, Chem 585.

551 Advanced Organic Chemistry
An intensive survey of basic fundamentals; brings the student up-to-date on current work. Includes a detailed mechanistic study of some of the more important organic reactions. Prerequisite, one year of organic chemistry or permission of instructor.

552 Identification of Organic Compounds
Identification of unknowns, both single compounds and mixtures of organic compounds, by their reactions, preparation of derivatives, spectra, and other physical properties. Two class hours, two 3-hour laboratory periods. Prerequisites, one year of organic chemistry and permission of instructor.
Credit, 4.

584 Advanced Physical Chemistry
Survey of modern physical chemistry; emphasis on fundamentals of quantum mechanics and statistical mechanics. For students not taking further advanced work in these areas. Prerequisite, Chem 586.

585 Advanced Physical Chemistry
Topics such as chemical thermodynamics, statistical mechanics, introductory quantum chemistry, and theories of gases, liquids, and solids. Prerequisite, Chem 586.

647 Inorganic Chemistry of the Common Elements
Chemistry of common element compounds based on thermodynamics, kinetics, structure, bonding, and periodicity (Optional 2-credit, 6-hour inorganic technique laboratory on demand.) Prerequisite, Chem 546 or permission of instructor.
Credit, 3-5.

648 Coordination Chemistry
Molecular orbital bonding theory, spectroscopy, magnetism, stereochemistry, and reaction mechanisms as applied to coordination species. Emphasis on transition elements. Prerequisite, Chem 546 or equivalent.

649 Structural Inorganic Chemistry
Application of principles of spectroscopy and magnetic resonance to structural aspects of inorganic substances. Symmetry, nonrigid molecules, coordination compounds, metal carbonyls, bio-inorganic systems, hydrogen bonding, solid state effects. Prerequisite, Chem 546 or equivalent.

660 Organic Reaction Mechanisms
A detailed survey of the basic organic reactions in terms of the relationship between structure and reactivity. Mechanistic presentation brings each topic up-to-date on the basis of current work. Prerequisite, Chem 571, or permission of instructor.

665 Advanced Organic Chemistry Laboratory
Discussion and laboratory work involving experimental techniques of research and design of experiments. Syntheses of compounds desired for research and use of the original literature. Prerequisite, a year course in organic chemistry.
Credit, 1-5.

699 Master's Thesis
Credit, 10.

710 Electroanalytical Chemistry
Principles of electrochemistry and their relation to the newer electroanalytical methods. Prerequisite, Chem 513 or equivalent.

715 Spectroanalytical Chemistry
Theory and practice of modern chemical analysis methods based upon spectroscopic measurements of atoms and molecules in solid, liquid, gas, and plasma states. Includes x-ray, optical, and radio frequency techniques. Prerequisite, Chem 513 or equivalent.
Credit, 4.

716 Chemical Separation Methods
Methods of chemical analysis using separatory techniques. Theory of separations and practical treatment of chromatographic methods, liquid-liquid extraction, precipitation, distillation, electrical and membrane separations. Prerequisite, Chem 513 or 515 or permission of instructor.
Credit, 4.

721 Advanced Analytical Chemistry
Special laboratory work to meet the needs of the individual student. Prerequisite, Chem 513 or equivalent.
Credit, 1-5.

726 Applied Analytical Chemistry
Application of basic analytical principles and techniques to the solution of actual analytical problems. The interrelationship between the diverse analytical approaches, as applied to organic, inorganic, qualitative, and quantitative problems. Prerequisite, Chem 513.

741 Inorganic Preparations Laboratory
Preparation and testing of various types of inorganic substances, to teach important techniques and give familiarity with the reactions and properties of inorganic materials.
Credit, 3-5.

742 Inorganic Chemistry of the Less Familiar Elements
The chemistry of some of the less familiar elements, with correlations among structural, thermodynamic, kinetic and chemical properties.

743,744 X-Ray Crystallography
Crystal symmetry and space groups. Principles of diffraction of x-rays, electrons and neutrons. Solution of crystal structures using single crystal techniques. Methods of obtaining trial structures and their refinement. Prerequisite, Chem 281 or equivalent.
Credit, 3 each semester

Civil Engineering

750 Heterocyclic Chemistry
The chemistry of the common organic heterocyclic compounds containing nitrogen, oxygen, and sulfur. Consideration of mechanisms of the reactions discussed. Prerequisite, Chem 571 or equivalent.

756 Organic Synthesis
Important synthetic reactions, with stress on recent developments in methods of organic synthesis. Develops the student's ability to propose his own syntheses of complex molecules. Prerequisite, Chem 571 or permission of instructor.

760 Organic Polymerization Reactions
Mechanisms, kinetics, and thermodynamics of principal types of polymerization reactions and their relationship to the properties of resulting polymers. Prerequisite, Chem 166 or equivalent.

761 Organometallic Chemistry
The chemistry of compounds containing carbon-metal and carbon-metalloid bonds. Preparation, structure, physical properties, chemical reactions, and synthetic applications of organometallic derivatives. Topics of current interest stressed. Prerequisite, Chem 571 or equivalent.

762 Chemistry of Natural Products
Natural products of current interest, primarily from the steroid, terpene, and alkaloid groups. Emphasis on structural proofs, stereochemistry, synthesis, and biogenetic relationships. Prerequisite, Chem 571 or permission of instructor.

763 Physical Organic Chemistry
Application of theory and physical principles to problems of structure, spectroscopy, and reactivity. Prerequisite, Chem 571; corequisite, Chem 594, or permission of instructor.

775 Statistical Thermodynamics
Introduction to statistical thermodynamics. Microcanonical, Canonical, Grand Canonical, and Generalized Ensembles. Application to chemical problems. Prerequisite, Chem 595 or equivalent.

777 Chemical Spectroscopy, Technique and Applications
Introduction to the elementary theory, and interpretation of data obtained in applications of infrared, Raman, visible, ultraviolet, nuclear quadrupole and nmr spectroscopy to chemical problems. Prerequisite, Chem 586 or equivalent.

778 Chemical Spectroscopy Theory
Introduction to the theory of infared, Raman, visible and ultraviolet, nuclear quadrupole and nuclear magnetic resonance spectroscopy. Prerequisites, Chem 787 and permission of instructors.

781,782 Quantum Chemistry
Quantum mechanics and its application to chemical problems and matter. Prerequisite, Chem 546 or equivalent.
Credit, 3 each semester.

788,789 Physical Chemistry of High Polymers
Structure of solid polymers, determination of molecular weights, sizes and shapes, mechanical properties of solid polymers, colligative properties of polymer solutions, polyelectrolytes, and physical chemistry of proteins. Prerequisite, Chem 785 or equivalent.
Credit, 3 each semester.

791 Special Topics in Chemistry
Topics of current interest in various fields of chemistry. Prerequisite, permission of instructor.
Maximum credit, 6.

891 Seminar
Conference, reports or lectures.
Credit, 1 each semester. Maximum credit, 2.

892 Research Group Seminar
Discussion, oral presentations, problem solving, and reading of current literature pertinent to the research interests of one or more faculty. For chemistry graduate students doing research. Graded P or F.
Credit, 1 each semester; maximum credit 4 for M.S., 8 for Ph.D.

896 Research Problem
Students prepare two proposals for research problems primarily involving library research, not directly related to the thesis topic, if the latter has been selected.
Credit, 4.

899 Doctoral Dissertation.
Credit, 18.

Graduate Faculty

Clive L. Dym, *Professor and Head of the Department of Civil Engineering,* B.C.E., The Cooper Union, 1962; M.S., Polytechni Institute of Brooklyn, 1964; Ph.D., Stanfor University, 1967.

William A. Nash, *Professor and Graduate Program Director,* B.S.C.E., Illinois Institute of Technology, 1944; M.S., 1946; Ph.D., Michigan, 1949.

Donald D. Adrian, *Professor,* B.A., Notre Dame, 1957; B.S., 1958; M.S., California Berkeley, 1959; Ph.D., Stanford University, 1964.

Robert R. Archer, *Professor,* B.S., Massachusetts Institute of Technology, 195 Ph.D., 1956.

Stanley M. Bemben, *Associate Professor,* B.S., Massachusetts, 1956; M.S., Illinois, 1958; Ph.D., Cornell, 1966.

Bernard B. Berger, *Professor Emeritus,* B.S., Massachusetts Institute of Technology 1935; M.S., Harvard, 1948.

William W. Boyer, *Professor,* B.S.C.E., North Carolina State, 1947; M.S.C.E., 1950.

Charles E. Carver, Jr., *Professor,* B.S.C.E Vermont, 1947; M.S.C.E., Massachusetts Institute of Technology, 1949; D.S., 1955.

Alexander Chajes, *Associate Professor,* B.S.C.E., Cooper Union, 1952; M.S.C.E., Polytechnical Institute, 1955; Ph.D., Cornell, 1964.

John Collura, *Assistant Professor,* B.S.C.E., Merrimack College, 1970; M.S.C.E., Villanova University, 1971; Ph.D., North Carolina State University, 1976.

Francis A. DiGiano, *Associate Professor,* B.S.C.E., Massachusetts, 1964; M.S.C.E., Tufts, 1965; Ph.D., Michigan, 1969.

Frederick J. Dzialo, *Associate Professor,* B.S.C.E., Massachusetts, 1954; M.S.C.E., 1957; Ph.D., Rensselaer Polytechnic Institute, 1965.

Richard J. Farris, *Adjunct Associate Professor,* M.S.C.E., Utah, 1969; Ph.D., 1970.

Tsuan H. Feng, *Professor,* B.S.C.E., Pei-Yang University, China, 1940; M.S.C.E., Wisconsin, 1946; Ph.D., 1950.

Denton B. Harris, *Assistant Professor,* B.S.C.E., Massachusetts, 1952; M.S.C.E., 1953; Ph.D., Texas A&M, 1975.

Karl N. Hendrickson, *Professor,* B.S.G.E., Maine, 1938; B.S.C.E., 1939; M.S.C.E., 1941.

William E. Heronemus, *Professor,* B.S., United States Naval Academy, 1941; M.S., Massachusetts Institute of Technology, 1948.

Daniel I. Hillel, *Adjunct Professor,* B.Sc., University of Georgia, 1950; M.Sc., Rutgers University, 1951; Ph.D., The Hebrew University of Jerusalem, 1958.

Gabriel Horvay, *Professor Emeritus,* B.S., New York University, 1933; E.E., Columbia, 1931; Ph.D., 1939.

Russel C. Jones, *Professor and Dean of the School of Engineering,* B.S., Carnegie Institute of Technology, 1957; M.S., 1960; Ph.D., 1963.

Enrique J. Lamotta, *Assistant Professor,* Civil Engineer, Central University (Quito, Equador) 1965; M.S., University of North Carolina, 1969; Ph.D., 1974.

Thomas J. Lardner, *Professor,* B.Aero. Eng., 1958; M.S., 1959; Ph.D., 1961, Polytechnic Institute of Brooklyn.

James W. Male, *Associate Professor,* B.S.C.E., Union College, 1968; Ph.D., The Johns Hopkins University, 1973.

Joseph S. Marcus, *Professor and Associate Dean of the School of Engineering,* B.S.Ch.E., Worcester Polytechnic Institute, 1944; M.S.C.E., Massachusetts, 1954.

Melton M. Miller, *Associate Professor,* B.S.C.E., Vermont, 1955, M.S.C.E., Purdue, 1958; Ph.D., 1964.

Ernest T. Selig, *Professor,* B.M.E., Cornell, 1957; M.S., Illinois Institute of Technology, 1960; Ph.D., Illinois Institute of Technology, 1964.

Paul W. Shuldiner, *Professor,* B.S.C.E., University of Illinois, 1951; M.S.C.E., 1953; Eng.D., California, Berkeley, 1961.

Fred D. Stockton, *Associate Professor,* B.S.C.E., Alabama, 1942; M.E., Brown, 1949; Ph.D., 1953.

Merit P. White, *Commonwealth Professor,* B.A., Dartmouth, 1930; C.E., 1931; M.S.C.E., California Institute of Technology, 1932; Ph.D., 1935.

The Civil Engineering Department offers the M.S. and Ph.D. degrees in Civil Engineering and Environmental Engineering. The latter program and the corresponding degrees and degree requirements are described elsewhere in this Bulletin under the corresponding heading. The Master of Science degree in Civil Engineering requires 30 graduate credits, of which six must be for a thesis or project with report, at the discretion of the Guidance Committee. There are the following options, each with a required core of four of five courses: Environmental Engineering, Fluid Mechanics and Hydraulics, Mechanics and Structures, Soil Mechanics and Foundations, and Transportation Engineering.

The only requirements for the degree of Doctor of Philosophy are specified by the Graduate School. The student's course of study, including both technical and non-technical courses as well as the dissertation topic, is determined by the student and individual guidance committee. It is intended that the entire program, including all non-technical courses, shall be related to the candidate's interests and career plans.

All courses carry 3 credits unless otherwise specified.

505 Advanced Surveying
Elements of astronomical, geodetic, and photogrammetric surveying; coordinate systems and map projections. Two class hours, one 3-hour laboratory period. Prerequisite, CE 101. Mr. Boyer

511 Traffic Engineering
Engineering solutions to planning, design, and operations problems of urban and rural street and highway networks. Two class hours, one 3-hour laboratory period. Prerequisite, CE 210.
Mr. Boyer

532 Theory of Structures II
Analysis of statically indeterminate structures. Prerequisite, CE 230.
Mr. Archer, Mr. Chajes, Mr. Nash, Mr. Stockton

534 Theory of Structures III
Analysis of complex or special structures. Prerequisite, CE 232; corequisite CE 331 and 333. Mr. Miller

535 Matrix Analysis of Structures
Development and use of the flexibility and stiffness methods of matrix analysis for determinate and indeterminate structures. Prerequisite, CE 232.
Mr. Archer, Mr. Chajes, Mr. Stockton

536 Advanced Topics in Concrete
Design of various types of reinforced concrete-building frames; elastic theory and ultimate-strength procedures. Prerequisites, CE 232 and 333. Mr. Miller

540 Strength of Materials II
Calculation of stresses and strains in components of machines and structures. Prerequisite, CE 141.
Mr. Archer, Mr. Chajes, Mr. Dym, Mr. Dzialo, Mr. Lardner, Mr. Stockton, Mr. White

556 Introduction to Hydrodynamics
Mathematical treatment of basic theorems of classical hydrodynamics: optential flow, conformal mapping, wave and vortex motion. Practical application of hydrodynamic principles to engineering problems. Prerequisite, Math 186 or permission of instructor. Mr. Carver

557 Theory of Hydraulic Similitude
Hydraulic similitude, dimensional analysis, methods of obtaining dynamic similarity in hydraulic models in actual practice, analysis of typical hydraulic models. Prerequisite, CE 257. Mr. Carver

559 Engineering Oceanography
Physical, biological, chemical, and geological characteristics of the marine environment which are relevant to ocean engineering activities.

560 Hydrology
The hydrologic cycle, including precipitation, runoff, ground water, flood routing, reservoir sedimentation, water law, and applications of hydrologic techniques to water resources engineering. Prerequisite, CE 260 or permission of instructor. Mr. Hillel

561 Open-Channel Flow
Steady flow in open channels, including channel transitions and controls, sediment transport, and elementary design of related hydraulic structures. Prerequisite CE 260.

562 Water Resources Engineering
Planning and design of dams, reservoirs, and other related hydraulic structures, including analysis of existing and proposed water resources projects. Prerequisite, CE 260 or permission of instructor.

565 Environmental Institutions and Policies
Public policies and laws relating to the use and conservation of water, air, land resources. Analysis of environmental-related governmental organizations at the federal, state, and local levels. Prerequisite, permission of instructor.
Mr. Adrian, Mr. Berger

569 Water Supply and Wastewater Collection
Sources of water; design of intakes and ground water wells; pumps and pumping stations; reservoirs, water transmission and distribution; design of sanitary and storm sewer systems; appurtenances and special structures in sewer systems. Prerequisites: CE 260 and 270 or equivalent.
Mr. LaMotta

570 Advanced Environmental Engineering Principles
The underlying physical, chemical, and biological principles involved in engineering studies of air, water, and solid-waste pollution problems are developed. Basic concepts are combined to model pollution-control systems and responses of the atmospheric, aquatic, and terrestrial environments. Prerequisite, permission of instructor. Mr. DiGiano

571 Industrial Waste Treatment and Control
Composition of industrial effluents; pollution criteria and effects of industrial wastes on receiving waters; physical, chemical, and biological methods and applications in treatment. Two class hours, one 3-hour laboratory period. Prerequisite, permission of instructor.
Mr. Lindsey.

572 Environmental Engineering Analysis I
An application of chemical principles to environmental engineering analysis with specific reference to pollution indices. Two class hours, one 3-hour laboratory period. Prerequisite, Chem 112.

573 Environmental Engineering Analysis II
The fundamental microbiological and biochemical properties of the microorganisms important in environmental engineering practice. Two class hours, one 3-hour laboratory period. Prerequisite, CE 672 or permission of instructor.

574 Radiological Health Engineering
Basic principles and procedures pertaining to the safe control, use, and disposal of common sources of ionizing radiation.
Mr. Marcus

575 Atmospheric Dispersion of Pollutants
Physical and dynamical properties of the atmosphere and their effect on dispersion of air-borne material. Methods of calculation of concentration fields in simple and complex flowfields. Practical approaches to the analysis of diffusion from point, jet, and urban area sources. Review of research techniques for measuring diffusion parameters. Prerequisite, Math 174.
Credit, 2.

576 Solid Wastes
Production, collection, transportation, treatment, and disposal of solid waste products (including municipal, industrial, and agricultural wastes). Prerequisite, permission of instructor.

577 Surface Water Quality Control
Evaluation and control of water quality in streams, lakes, and reservoirs. Mathematical analyses of patterns of water movement and their relation to water quality. Prerequisite, permission of instructor. Mr. Feng

581 Materials in the Ocean Environment
Response of materials to the ocean environment, including theories of corrosion, corrosion control, fouling and antifouling systems. Mr. Harris

583 Public Policy and the Use of the Seas
Policies of the United States and other nations toward sovereignty over and use of the seas. Laws and agreements relating to jurisdiction over oceanic and estuarine resources and arrangements for prevention of their degradation.
Credit, 2 Mr. Heronemus

610 Transportation Analysis and Planning
Analysis of traffic and transportation engineering problems in highways, railroads and airports and the planning related to those facilities. Prerequisite, permission of instructor. Mr. Shuldiner

615 Pavement Design
The theory of flexible and rigid pavement design: soil conditions, joints, base and subgrade material and mix.
Mr. Boyer

616 Transportation Design
Design of the visible features of rural and urban roadways and intersections.
Mr. Boyer

630 Plastic Steel Design
Plastic analysis and design of steel frames, plates, and shells. Prerequisites, CE 331 and 532.
Mr. Chajes, Mr. Dzialo, Mr. Stockton

631,632 Civil Engineering Analysis I, II
Mathematical and computational methods for the solution of civil engineering problems. Topics include equilibrium problems in continuous systems and the solution of related self adjoint boundary value problems in one or more space variables; vibration and stability problems, orthogonal functions, and eigenvalue problems; propagation problems in discrete and continuous systems. Prerequisite: mathematical background covering topics in advanced engineering mathematics.
Credit, 3 each semester.
Mr. Archer, Mr. Stockton

641 Structural Dynamics
Behavior of linear and non-linear mechanical systems subjected to periodic forces, to non-periodic forces and to shock loads. Mr. Archer, Mr. Chajes, Mr. Dym, Mr. Dzialo, Mr. Nash, Mr. White

642 Experimental Stress Analysis
Experimental procedures for determination of stresses and strains due to static and dynamic loads. Mr. Harris

645 Structural Stability
Linear and non-linear buckling of columns, frames, plates and shells; elastic, inelastic, and finite deformation theories. Exact solutions and approximate solutions by energy and finite difference methods.
Mr. Archer, Mr. Chajes, Mr. Dym, Mr. Lardner, Mr. Nash

680 Engineering Design of System Payload Devices
Techniques for augmentation of man's abilities in the seas. Underwater illumination, manipulative and prosthetic devices, tools and instruments for underwater work. Prerequisite, permission of instructor.

690D Public Transportation Systems
Planning, design, and management of public transportation systems including rail, fixed route-fixed schedule bus, and demand responsive programs. Prerequisite, basic probability and statistics.
Mr. Collura, Mr. Goss, Mr. Shuldiner

691,692 Seminar
Presentation by the graduate student of selected current literature and research. Visiting lecturers. One class hour.
Credit, 1.

697 Master's Project
Research carried out and reported under the supervision of student's advisor as partial fulfillment of the requirements for Master's degree in Civil Engineering or Environmental Engineering. May not be taken by those taking CE 800, Master's Thesis.
Credit, 3-6.

699 Master's Thesis
Minimum credit, 6.

700 Special Problems
Credit, 3-6.

720 Theoretical Soil Mechanics
The behavior of soil masses subjected to such forces as seepage, frost and imposed loads. Mr. Selig

721 Applied Soil Mechanics
Solution of case problems applying the principles of soil mechanics to the design of embankments, retaining walls, footings, raft foundations, and pile structures. Prerequisite, CE 720.
Mr. Bemben, Mr. Hendrickson, Mr. Selig

722 Seepage Analysis
Analytical study of ground water and seepage problems related to earth structures. Mr. Hendrickson

723 Shear Strength of Soils
Survey of current theory and research.
Mr. Bemben, Mr. Selig

724 Submarine Soil Mechanics and Foundation Engineering
Exploration of marine sediments, assessment of geotechnical properties and methods for their alteration, submarine slope stability, and foundation design factors for structures on and in marine sediments. Prerequisite, CE 220 or equivalent. Mr. Bemben

734 Numerical Methods in Structural Mechanics
Application of numerical methods to the solution of problems of structural mechanics. Finite difference techniques and other methods for the solution of problems in the vibration, stability and equilibrium of structural elements. Prerequisite, Math 585, introductory computer programming, or permission of instructor.
Mr. Archer, Mr. Miller, Mr. Stockton

738 Analysis and Design of Ocean Engineering Structures
Techniques for analysis and prediction of loading, performance, and durability of fixed coastal and offshore structures; examination of structural design factors peculiar to the marine environment. Prerequisite, CE 559. Mr. Nash

743 Elasticity
General equations of the mathematical theory of elasticity in space. Plane strain and plane stress in cartesian, polar, and general orthogonal coordinates.
Mr. Archer, Mr. Dym, Mr. Dzialo, Mr. Horvay, Mr. Lardner, Mr. Nash, Mr. Stockton

744 Theory of Plates
Classical theory of plates as well as modern developments. Relationship of the general theory of elasticity to plate theory. Mr. Archer, Mr. Dym, Mr. Dzialo, Mr. Lardner, Mr. Nash, Mr. Stockton

746 Seismic Analysis of Structures
Principles of engineering seismology including the analysis and design of structures to resist earthquake motions. Prerequisite, CE 741.
Mr. Chajes, Mr. Dzialo, Mr. Nash, Mr. White

747 Structural Dynamics II
A continuation of CE 741. Emphasis on analysis of civil engineering structures subject to various steady state and transient loadings. Prerequisite, CE 741.
Mr. Chajes, Mr. Dzialo Mr. Nash, Mr. White

748 Structural Shells
Analysis of structural shells. Membrane theory, bending theory of shells of revolution, shear deformation shell theory, nonlinear theories, stability. Prerequisite, permission of instructor.
Mr. Archer, Mr. Dym, Mr. Lardner, Mr. Nash

751 Fluid Mechanics of the Ocean
Introduction to geophysical fluid dynamics. Emphasis on large-scale interactions between the atmosphere and the oceans. Prerequisite, CE 256/556 or equivalent.

752 Ocean Wave Theory
Classical theories of water waves, generation and propagation of waves at sea; observation and analysis of sea waves, wave spectra, sea forecasting, and wave effects. Prerequisite, CE 256/556 or equivalent.

763 Subsurface Hydrology
Interrelation of surface and subsurface hydrology. Saturated and unsaturated flow in permeable media. Development and utilization of subsurface waters. Chemical, bacteriological, and physical aspects of ground water quality. Deep well liquid wastes disposal. Prerequisite, CE 660 or permission of instructor.
Mr. Adrian

765 Coastal and Estuarine Hydrodynamics
Techniques for analysis, simulation, prediction, and measurement of hydrodynamic behavior of coastal and estuarine waters. Environmental considerations in the planning, design, construction, and operation of engineering works in coastal waters. Prerequisites, CE 256/556 and CE 559, or equivalent.

770 Environmental Engineering Design
Selection, evaluation, and design of environmental engineering processes and systems based on laboratory evaluations and pilot plant studies. Prerequisites, CE 771 and 772.
Mr. DiGiano, Mr. Lindsey

771 Unit Processes of Environmental Engineering
Application of biological processes in environmental engineering: aerobic and anaerobic biological oxidation. Design of aeration and disinfection subsystems. Prerequisite, CE 669 and 670.
Mr. Lindsey

772 Unit Operations of Environmental Engineering
Application of physical and chemical processes in environmental engineering: sedimentation, flotation, filtration, adsorption, ion exchange, drying and chemical coagulation. Prerequisites, CE 669 and 670. Mr. DiGiano

773 Air Sampling and Analysis
Applications of fluid mechanics and gas laws to measurement and collection of atmospheric pollutants which are injurious to health. These pollutants are analyzed by various chemical techniques. Prerequisite, permission of instructor.

774 Advanced Waste Treatment
Application of new techniques for treatment of waste water with the ultimate objective of providing closed-cycle use. Methods of removing nonbiodegradables and inorganics from wastewater using physical and chemical processes. Prerequisites, CE 771 and 772.
Mr. DiGiano

775 Environmental Systems Simulation
Theoretical and practical factors governing simulation in environmental engineering systems. Mathematical models of water resources, water supply, waste treatment and disposal systems. Prerequisites, Math 187 and CE 270.
Mr. Adrian

Classics

776 Bio-Instrumentation of Environmental Systems
Instrumentation and analytical techniques for research on biological, biochemical, and chemical systems influencing man's environment. Spectral theory and absorption spectroscopy, chromatographic and mass spectrographic analysis, automatic analysis instruments. Prerequisite, CE 672 or equivalent.

780 Mechanics of Materials
Advanced topics related to the mechanical behavior of structural materials.
Mr. Harris

782 Deep Ocean Systems Engineering and Design
Systems engineering applied to analysis and synthesis of systems capable of doing useful work in the deep oceans. Emphasis on design of deep-submergence vehicles. Three class hours, one 3-hour laboratory period. Mr. Heronemus
Credit, 4.

783 Structural Mechanics of Deep Submersible Vehicles
Elastic and inelastic action of pressure hull structure for deep submersible vehicles; design criteria for stiffened shells and plating common to such systems. Prerequisite, CE 141 or CE 240.
Mr. Nash

784 Fundamentals of Naval Architecture
Vehicle buoyancy and stability, vehicle resistance and production of thrust, motion of surfaced and submerged bodies, vehicle maneuvering and control, towing and mooring line analysis. Three class hours, one 3-hour laboratory period.
Credit, 4. Mr. Heronemus

785 Ocean Engineering Field Laboratory
Introduction to oceanographic measurements and ocean engineering field operations. Emphasis on development of practical approaches to problems in ocean environment. Prerequisite, OE core curriculum.
Credit, 1-6.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

J. Norman Austin, *Professor and Chairman of the Department of Classics,* B.A., Toronto, 1958; M.A., California at Berkeley,1960; Ph.D., 1965.

Edward Phinney, Jr., *Professor and Graduate Program Director,* B.A., University of Oregon, 1957; M.A., 1959; Ph.D., University of California at Berkeley, 1963.

Vincent J. Cleary, *Associate Professor,* B.S., St. Joseph's College, 1954; M.A., Villanova University, 1959; Ph.D., University of Pennsylvania, 1967.

Robert H. Dyer, *Professor,* B.A., Auckland University College, 1954; M.A., University of New Zealand, 1955.

Robert J. Goar, *Associate Professor,* B.A., Harvard College, 1954; M.A., Harvard University, 1958; Ph.D., 1968.

David Grose, *Assistant Professor,* B.A., St. Olaf College, 1966; Ph.D., Harvard University, 1975.

Gilbert W. Lawall, *Professor,* B.A., Oberlin College, 1957; Ph.D., Yale University, 1961.

Elizabeth Lyding Will, *Associate Professor,* B.A., Miami University, 1944; M.A., Bryn Mawr College, 1945; Ph.D., 1949.

The degree of Master of Arts in Teaching (M.A.T.) may be earned in Latin and Classical Humanities. The Department's Program in Latin and Classical Humanities comprises coordinated studies in classical languages and literatures, the methodology of teaching ancient and modern languages, and curricular development. Students in the program may supplement their studies, under the Five College Cooperation Program, with courses at the neighboring colleges (Amherst, Mount Holyoke, and Smith), and they gain practical experience by teaching courses in Latin and classical humanities at the University and at nearby cooperating high schools. They also participate in extracurricular activities of the Massachusetts Junior Classical League and the Pioneer Valley Classical Association. Graduates of the program usually apply for certification to teach Latin, classical humanities, and a modern foreign language or English in secondary schools.

A minimum of 39 or 45 credits (depending on the option) is required. These credits should be distributed as follows: 21 (or 27) in Latin, classical humanities, and a minor teaching field; 9 credits in professional education; and 9 credits in a teaching practicum accompanied by a seminar. The 39-credit option is recommended for students who intend to teach in secondary schools; the 45-credit option is recommended for students who wish to apply for positions in community or junior colleges.

Required for the M.A.T. degree in Latin and Classical Humanities is a strong undergraduate major in Latin or classics, preferably including some Greek, with sufficient experience in Latin language and literature to permit graduate work in the field. Strongly recommended, since Latin teachers are increasingly being required to teach a modern foreign language in addition to Latin, is an undergraduate minor (18 credits) in one of the Romance languages, particularly French or Spanish. Also acceptable, but less in demand, are undergraduate minors in English, German, Italian, or history. Some credits in the minor field may be completed at the University, but often may not be applied toward graduation-credit requirements. Also strongly recommended are undergraduate courses in educational or adolescent psychology AND foundations or philosophy of education. Ideally, these courses should be taken before the student enters the program.

All courses carry 3 credits unless otherwise specified.

Classics

601 The Ancient City
The city and the rise of city-planning in the Near East, Greece, and Italy; stress on sociological and economic aspects. Special attention to Rome and its urbanization in the Empire.

602 The Material World of the Romans
The Romans as people on the basis of the archaeological evidence about their daily lives (their houses, pottery, coins, glass, textiles). Special attention to the finds from Pompeii.

603 The Roman City
The topography, monuments, and daily life of selected Roman cities with emphasis on Rome itself. Sociological, economic, and environmental factors in ancient city planning. May involve travel and study in Italy. By arrangement (summer only).
Credit, 1-6.

08 The Teaching of Classical Humanities in Secondary Schools
Guidance in preparing enrichment material in language classes and in designing and teaching courses dealing with classical life and institutions, drama, art, mythology, and literature on the secondary level.

96 Special Problems
Directed study of some problem in classical civilization.
Credit, 1-6.

98 Student Teaching: Classics
Supervised practice teaching in secondary schools.
Credits, 1-12.

Greek

96 Special Problems
Directed study of some problems in Greek literature.
Credit, 1-6

Latin

05 Oral Interpretation of Latin Literature
Practice in the expressive reading of Latin texts. One class hour.
Credit, 1.

(Two of the following courses—Latin 525-533—are offered each semester.)

25 The Latin Political Tract
Selections from Sallust and Caesar accompanied by an historical and literary analysis of their works.

26 Latin Didactic Epic
Selections from Lucretius, Vergil's *Georgics*, and Ovid's *Ars Amatoria*.

27 Latin History and Biography
Selections from Livy, Tacitus, and Suetonius.

28 Latin Drama
Selected plays of Plautus, Terence, and Seneca.

29 Latin Essays and Letters
The Roman mind as revealed in the philosophical works of Cicero and the moral epistles of Seneca; Roman private life and personal concerns as revealed in the letters of Cicero and Pliny.

30 Latin Elegiac Poetry
Selections from Catullus, Tibullus, Propertius, and Ovid.

531 Cicero's Orations
The major orations of Cicero interpreted against their social and political background and analyzed according to ancient rhetorical theories.

532 Lyric Poetry
Selected lyrics of Catullus and Horace.

533 Vergil's *Aeneid*
The entire poem with attention to traditional and contemporary critical perspectives and evaluations.

575 Advanced Grammar and Style
Structure of the language; evolution of grammatical and linguistic concepts and terminology used to describe them. Analysis of the style of representative Latin prose authors and exercises in composition.

599s Latin Education
Student Teaching: Secondary
Credit, 6-15.

607 Teaching the Latin Language
Methods and materials for teaching the Latin language in secondary schools. May be coordinated with practice teaching experiences.

608 Teaching Latin Literature
Methods and materials for teaching Latin literature in secondary schools. May be coordinated with practice teaching experiences.
Credit, 1-3

692 Seminar
Intensive, advanced study of some aspect of Latin literature.

696 Special Problems
Directed study of some problem in Latin literature.
Credit, 1-6.

698 Student Teaching: Latin
Supervised practice teaching in secondary schools.
Credit, 1-12.

699 Master's Thesis
Research and writing of a master's thesis. Optional.
Credit, 1-9.

Graduate Faculty

Joseph R. Duffy, *Assistant Professor,* B.A., Montclair State College, 1968; M.A., 1971; Ph.D., Connecticut, 1974.

Roy W. Gengel, *Associate Professor,* B.A., Knox College, 1958; M.S., Wisconsin, 1962; Ph.D., CID-Washington University, 1968.

Gerard L. Kupperman, *Assistant Professor,* B.A., Brooklyn College, 1967; M.S., 1968; Ph.D., Wisconsin, 1970.

Jay Melrose, *Professor,* B.A., Queens College, 1948; M.A., 1953; Ph.D., Illinois, 1954.

Gary P. Nerbonne, *Associate Professor,* B.S., Central Michigan, 1959; M.A., 1962; Ph.D., Michigan State, 1967.

E. Harris Nober, *Professor,* B.A., 1951; M.A., Brooklyn College, 1952; Ph.D., Ohio State, 1957.

Henry B. Peirce, Jr., *Assistant Professor,* B.A., Massachusetts, 1950; M.A., Michigan, 1955; Ed.D., Boston University, 1970.

Charlena M. Seymour, *Assistant Professor,* B.A., Howard, 1965; M.A., 1967; Ph.D., Ohio State, 1971.

Harry N. Seymour, *Associate Professor,* B.A., Howard, 1964; M.A., 1969; Ph.D., Ohio State, 1971.

Gilbert C. Tolhurst, *Professor,* B.A., 1937; M.A., Brigham Young, 1946; Ph.D., Iowa, 1948.

The Department of Communication Disorders offers programs leading to the M.A. and Ph.D. degrees.

MASTER'S DEGREE PROGRAM

This program requires two years of study following completion of all undergraduate requirements. The course requirement is the completion of 11 core courses related to an emphasis in either Speech Pathology or Audiology (33 credits). In addition, the candidate would enroll in clinical practicum each semester in order to complete a minimum of 300 supervised clock hours. These requirements are consistent with those of the American Speech and Hearing Association and are designed to lead to certification. On-campus and off-campus placements are available for the completion of clinical practicum. Other elective courses are available beyond the core courses. The candidate has the option of a thesis or non-thesis program.

In the thesis program, the final examination centers about the defense of the thesis. Those selecting the non-thesis option must pass a comprehensive examination.

DOCTOR OF PHILOSOPHY PROGRAM

The doctoral candidate must complete graduate level course work in various areas in keeping with the following minimums:

1. Major in Communication Disorders (30 credits).
2. Minor in an area selected (15 credits).
3. Speech and Hearing Science (9 credits).
4. Statistical and Computational (9 credits).
5. Dissertation (18 credits).

At the completion of the majority of the course work, the candidate is given a comprehensive examination. The dissertation is undertaken following successful completion of the comprehensive examination.

A strong advisory system is maintained for all graduate candidates to help in working out programs and to aid in meeting departmental, school, and University regulations.

All courses carry 3 credits unless otherwise specified.

510 Language and Learning Disabilities in Children
Learning disabilities associated with physical, psychological, and social etiologies. Problems of language development and cognitive disorders, remedial practices in reading and writing problems, and learning patterns of the culturally disadvantaged. Diagnostic assessment and educational processes outlined. Mr. Nober

540 Nature and Needs of the Hearing Impaired
How impaired ability to communicate affects social, psychological, and educational development of hearing impaired individuals. Prerequisite, permission of instructor for non-Comm Dis majors.
Mr. Gengel

590A Auditory Perceptual Dysfunction
Diagnostic and remediation procedures for dealing with the auditorially perceptually disabled child. Topics include auditory perception, attention, memory, discrimination and learning. Prerequisites, Comm Dis 313, 314 or equivalents and permission of instructor.
Mr. Gengel

590D Neurological Basis of Speech and Language
Central and peripheral nervous system anatomy and physiology and their role in normal speech and language; introduction to neuropathologies and their contribution to understanding normal communication. Prerequisites, Comm Dis 211, 310-312 or equivalents. Mr. Duffy

610 Articulation Disorders
The nature and treatment of articulation disorders. Ms. Seymour

611 Stuttering
Review of major theories regarding evaluation, and clinical management of stuttering. Ms. Seymour

612 Voice Problems
Voice disorders, organic and functional; symptoms, and principles and techniques of therapy and diagnosis. Prerequisites, Comm Dis 210 and 211 or equivalents. Ms. Seymour

613 Neuropathologies of Language in Adults
Underlying neuropathology, theory, clinical characteristics, concomitant conditions, diagnostic measures, prognosis, treatment approaches, and evidence of treatment efficacy related to acquired disorders of language in adults. Prerequisites, Comm Dis 597 or equivalent.
Mr. Duffy

614 Differential Diagnosis in Speech and Language Disorders
Review, analysis and demonstrations of diagnostic procedures for assessment and evaluation of speech and language disorders. Prerequisites, Comm Dis 210 or 416 or equivalents. Mr. Melrose, Ms. Seymour

620 Counseling in Communication Disorders
Characteristics and types of counseling in communication disorders; emphasis on client-clinician relationship. Mr. Peirce

621 Studies in American Dialects
Review of literature and research in American dialectology; emphasis on procedures of diagnosis and treatment for communication disorders among populations whose speech and language are nonstandard. Mr. Seymour

622 Management of Communication Disorder Programs
Investigation, management and supervision of speech pathology and audiology programs in public schools, rehabilitation centers, hospital clinics, and special-education residential settings. Prerequisite, permission of instructor.
Mr. Melrose

623 Oro-Facial Speech Disorders
Causes and classifications of congenital oro-facial anomalies. Speech, hearing, language and related characteristics of the cleft palate population and diagnosis and treatment of velopharyngeal incompetence and associate problems. Prerequisites, Comm Dis 211, 310-312 or equivalents. Mr. Duffy

624 Motor Speech Disorders
Theory and research related to the underlying pathology, salient features, confirmatory signs, and diagnostic and treatment approaches to dysarthrias and apraxia of speech in children and adults. Prerequisites, Comm Dis 590 D or equivalent. Mr. Duffy

630 Introduction to Graduate Research in Communication Disorders
Research strategies and their applications to research problems relating to normal and pathological speech, hearing and language processes. History of research in areas relating to Communication Disorders; university research resources; role of statistics in speech, hearing and language research problems; evaluation of research.
Mr. Nerbonne

640 Advanced Clinical Audiology
Theories, methodologies, and procedures for special diagnostic testing in audiology. Hearing, selection and evaluation procedures. Prerequisite: Comm Dis 313, 314 or equivalents.
Mr. Boothroyd, Mr. Kupperman

641 Aural Rehabilitation of the Hearing Handicapped
Techniques of speechreading for hard of hearing children and adults, needs for amplification and auditory training, case management of the hearing impaired child and adult. Laboratory practice with prepared lesson plans. Prerequisite: Comm Dis 313 or equivalent.
Mr. Gengel

642 Hearing Aids and Amplification
The nature and types of amplifying systems employed with hearing-handicapped. Electro-acoustic characteristics including gain, power, acoustic response, distortion, etc. Principles and

methods of selection and usage of hearing aids. Prerequisite, Comm Dis 640 or equivalent. Mr. Kupperman

643 Hearing Conservation and Industrial Audiology
Identification and management of the hearing impaired in hospitals, public schools, and industry. Noise control and other preventative measures. Prerequisite, Comm Dis 313 or equivalent.
Mr. Tolhurst

644 Educational Audiology
Investigation and evaluation of the recent research and advances in knowledge concerning the auditory capacities, and the management of audiological problems. Prerequisites, Comm Dis 313, 314, 641 or equivalents. Mr. Nober

645 Theories of Hearing
Current acoustic, psychophysiological, physical, anatomical, psychological and clinical aspects of audition, and the theories of hearing developed to explain them. Prerequisites, Comm Dis 211, 311, 313, 314 or equivalents. Mr. Tolhurst

650 Acoustic Phonetics
The acoustic characteristics of speech; distinctive acoustic features of phonetic elements and their relations to production and reception; emphasis on laboratory approaches. Student research projects. Prerequisite, Comm Dis 630 or equivalent. Mr. Nerbonne

651 Physiological Phonetics
The physiological processes involved in speech and voice production; distinctive physiological features of phonetic elements; laboratory approaches. Student research projects. Prerequisite, Comm Dis 630 or equivalent. Mr. Tolhurst

691 Graduate Seminar in Communication Disorders
Analysis and discussion of major problems in the field of communication disorders. One of the following topics is usually offered: a) communication disorders and the teacher, b) communication disorders in geriatrics, c) communication disorders and medicine, d) the non-verbal child, e) electro-physiologic audiometry, and f) speech audiometry. Prerequisite, permission of instructor. May be repeated for credit.
Maximum credit, 9.

692 Medical Audiology
Advanced principles and practices of audiologist relative to differential diagnosis, otological surgery, and medical intervention, research. Clinical practicum included. Prerequisites, Comm Dis 313, 314, 640, 641, 642 or equivalents.
Mr. Nober

696 Special Problems
Independent study in special subjects. Repetition requires permission.

697 Public School Speech and Hearing Therapy
Role of speech therapist in school system.
Ms. Seymour

698 Clinical Practice in Communication Disorders
Supervised clinical practice with children and adults with various speech, language, and hearing disorders; group and individual therapy techniques; on-campus and off-campus experiences.

699 Master's Thesis
Credit, 3-6.

899 Doctoral Dissertation
Credit, 18

Graduate Faculty

Kenneth L. Brown, *Associate Professor and Chairman of the Department of Communication Studies,* B.S., Syracuse, 1955; M.A., 1960; Ph.D., Northwestern, 1965.

W. Barnett Pearce, *Associate Professor and Graduate Program Director,* B.A., Carson-Newman College, 1965; M.A., 1968; Ph.D., Ohio University, 1969.

Vincent M. Bevilacqua, *Professor,* B.A., 1957; M.A., Emerson, 1958; Ph.D., Illinois, 1961.

Jane Blankenship, *Professor,* B.A., Akron, 1956; M.A., 1957; Ph.D., Illinois, 1961.

Jennings Bryant, *Assistant Professor,* A.B., Davidson College, 1967; M.Div., Louisville Presbyterian Theological Seminary, 1971; Ph.D., Indiana, 1974.

Vernon E. Cronen, *Associate Professor,* B.A., Ripon College, 1963; M.A., 1968; Ph.D., Illinois, 1970.

Leslie K. Davis, *Assistant Professor,* B.A., Slippery Rock State College, 1968; M.S., Indiana State University, 1969; Ph.D., Pennsylvania State, 1975.

Brian F. Fontes, *Assistant Professor,* B.S., Brigham Young, 1972; M.S., 1974; Ph.D., Michigan State, 1977.

Richard D. Harper, *Assistant Professor,* B.A., Vermont, 1948; M.A., 1949; Ph.D., Wisconsin, 1951.

Fern L. Johnson, *Assistant Professor,* B.A., Minnesota, 1968; M.A., Northwestern, 1969; Ph.D., Minnesota, 1974.

Ronald J. Matlon, *Associate Professor,* B.A., Indiana State, 1960; M.S., 1962; Ph.D., Purdue, 1966.

Nancy T. Mihevc, *Assistant Professor,* B.A., 1968; M.A., 1969; Ph.D., Illinois, 1974.

Martin F. Norden, *Assistant Professor,* B.J., Missouri, 1973; M.A., 1974; Ph.D., 1977.

William K. Price, *Assistant Professor,* B.A., Maryland, 1954; M.A., 1960; Ph.D., Wisconsin, 1964.

Ronald E. Reid, *Professor,* B.A., Pepperdine College, 1950; M.A., New Mexico, 1951; Ph.D., Purdue, 1954.

Maurice E. Shelby, Jr., *Associate Professor,* B.A., Washington, 1960; Ph.D., Ohio State, 1963.

Hermann G. Stelzner, *Professor,* B.A., Emerson, 1953, M.A., 1955; Ph.D., Illinois, 1957.

Richard L. Stromgren, *Assistant Professor,* B.A., Massachusetts, 1954: M.A., Northwestern, 1958.

The Department of Communication Studies offers programs leading toward the M.A. and Ph.D. degrees.

The Communication Studies Department is concerned with the process by which people are linked through the creation, transmission, and interpretation of messages. The study of this process embraces historical-critical, descriptive, and experimental methods. The process is analyzed from several foci of concern. These include the organization and function of media systems, the process of interpersonal and mass communication, the reciprocal relation between communication systems and social institutions such as business organizations, government and families, the acquisition of interpersonal communication skills, the history of communication and rhetorical theory, media institutions development, social impact of communication, the criticism and evaluation of communication, communication education and the development of formal communication theory.

Graduate students pursuing a Ph.D. in Communication Studies may elect to focus primarily on Interpersonal Communication and Rhetoric or on Mass Communication; however all candidates are required to pursue course work in both areas. The Interpersonal Communication and Rhetoric focus emphasizes face-to-face communication and utilizes a variety of methodologies for the development of human communication theory and the improvement of communication based upon strong research foundations. Similarly, the Mass Communication focus embraces a wide range of methods in stressing the function of mediated communication—film, broadcasting, and print. It also stresses theory development and criticism with special attention to the systemic and institutional characteristics of human communication. The Ph.D. program prepares students for academic careers and for research and development positions in commercial and public media, business organizations and government.

The department requires a research tool. It is up to the student's Guidance Committee to require the specific competencies deemed appropriate to the candidate's research. For example, students doing quantitative research would probably need advanced work in statistics or computer science; students doing historical-critical research in classical rhetoric probably need a reading-knowledge of one or more languages.

Candidates for the M.A. degree select one of the following major areas of concentration: 1) mass communications, 2) interpersonal communication and rhetoric, or 3) communication education.

Graduate work leading to an M.A. in mass communications provides the student with an academic background for entering the communications industries in either educational or commercial media, and provides a foundation for doctoral study. The M.A. in Interpersonal Communication and Rhetoric emphasizes theoretical, historical, and critical studies of these subjects and is designed primarily to prepare students for doctoral study and for careers in college and university teaching and research. Graduate work leading to the M.A. in Communication Education is a more general course of study to prepare candidates for community college and secondary school teaching of interpersonal communication, rhetoric, debate, theatre and mass communication.

Applicants to the graduate program should meet all requirements for admission to the Graduate School and either have a good undergraduate background in communication studies or expect to correct deficiencies without graduate credit.

The M.A. degree is offered under a thesis and non-thesis option. Candidates must complete a minimum of 30 credits for either option. The thesis option allows up to six credits for the thesis. A minimum of 60 credits beyond the bachelor's degree, exclusive of credits for the dissertation, is required for the Ph.D. Plans of study are prepared individually in consultation with faculty advisers.

Note: The department's course offerings implement a three-level tiered curriculum. The base of the curriculum is a three-course core consisting of a survey of concepts and theories of communication and both quantitative and historical/critical/descriptive research methodologies. The center of the curriculum consists of 600 and 700 level courses; and at the apex are 800 level topical seminars which study particular subjects in great depth. The purpose of this curriculum is to produce students who are expert in their area of concentration, can locate their field of study in the context of alternative theoretical options and research procedures, and can account for their substantive and methodological decisions. For specific degr requirements and current offerings, see t departmental *Graduate Handbook.*

All courses carry 3 credits unless otherwi specified.

514 Communication and Language Theory
The nature of speech and languag and the process involved in acquirin understanding, and producing spee and language. Prerequisite, permissi of instructor.

537 Broadcasting and the Government
The role, function, and effect of regul tion on broadcasting. Prerequisit Comm Studies 121.

546 Film Theory and Criticism
Basic theories of film communicatio various film modes and structure Development of bases for evaluation films according to communicative ar aesthetic values. Prerequisite, Com Studies 340.

563 Classical Rhetorical Theory
Major rhetorical theories from the emergence in ancient Greece to the la Roman Empire. Emphasis on t Sophists, Plato, Aristotle, Hermagora Cicero, Quintillian, and St. Augustin

565 Contemporary Rhetorical Theory
Contemporary philosophical a proaches to rhetorical theory. Selecte major contemporary theorists such Weaver, Richards, Burke, Dunca McLuhan, and Perelman.

570 Children and Speech Communicatio
Nature and role of speech communic tion in the elementary classroon Emphasizes development of speech b haviors, child-child and child-adult con munication, and curriculum applic tions.

572 Teaching Speech Communication in the Secondary School
Systematic instruction in speech con munication in the secondary school. En phasis on teaching philosophy, classroo problems and procedures, methods an materials.

575 Directing the Forensic Program
Problems related to forensic programs coaching individual and group activitie judging, tournament administratio and administration of the entire forensi program. Prerequisite, permission of i structor.

612 Seminar in Media Research Methods
Introduction to the applications of descriptive, experimental, critical, and historical research methodologies to the field of human communication. May be repeated for a total of 6 credits.

641 Film and Society: The Cinema as a Social Force
The effective and reflective roles of film in society. Emphasis on the relationship of society to the structure, development, function, and effects of the motion picture.

655 Seminar in Public Address
Selected topics in the history and criticism of public address. Prerequisite, permission of instructor. May repeat for a total of 6 credits.

661 Seminar in Rhetorical Theory
Selected topics in rhetorical theory; detailed consideration of the relationship of rhetoric to other disciplines, specific concepts, periods, and figures. Prerequisite, permission of instructor. May repeat for a total of 6 credits.

662 Approaches to Rhetorical Criticism
Various critical approaches to rhetorical transactions. Historical, Formalist, Sociocultural, Psychological, and Archetypal.

666 Rhetoric and Social Change in America
A survey of the rhetorical strategies of various American social movements such as the American Revolution, the populist movement, and the civil rights movement.

671 History of Communication Education
Speech pedagogy from ancient Greece to the present. Emphasis on speech-communication education in America.

696 Special Problems
Independent study in special subjects for Master's or first-year graduate students. No more than 9 credits may be applied toward the M.A. degree.
Credit, 1-3 each semester; maximum credit, 9.

698 Practicum: Student Teaching in Speech, Secondary School
Supervised student teaching in speech in grades seven through twelve. Students should plan to devote full time to this internship. Required of graduate students seeking state teacher certification.
Credit, 12-15.

699 Master's Thesis
Credit, 3-6.

711 Experimental Studies in Persuasion Theory
Scientific study of the interplay of interpersonal and mass communication in persuasion. Critical review of prevailing research paradigms. Prerequisites, COMSTU 612 or equivalent.

712 Political Communication
Diffusion of persuasive political communications through standard and created media. Examination of campaign techniques (*i.e.*, research on issues and themes, electorate polling, thematic media approaches, campaign strategies) in management and administration.

731 Seminar in Broadcasting
Revolving topics including media criticism, broadcasting and the presidency, international media systems, cable television, systems theory analysis of media institutions, etc. Prerequisites, 9 upper division hours in mass communications and permission of instructor. May repeat for credit. Credit not granted for the same topic twice.

741 Seminar in Film
Intensive study of topics in film history, theory, and criticism. Revolving topics. Prerequisite, 9 upper-division hours in mass communications and permission of instructor. Course may be repeated; credit not granted for the same topic twice.

752 Theories of Language and Style
Revolving topics including language and sex roles, conversation analysis, history of language and style theory, application of language and style to rhetorical theory and criticism. Prerequisite, permission of instructor.

771 Seminar in Communication Pedagogy
Selected topics relevant to the principles and methods of teaching communication. Attention to communication and rhetorical theory.

796 Special Problems
Independent study in special subjects for doctoral level graduate students.
Credit, 1-3 each semester; maximum credit, 6.

811 Seminar in Research Topics and Methods
Emphasis on multivariate statistical techniques and scaling in human communication research. Offered as needed for doctoral students. Prerequisites, COMSTU 612 or permission of instructor.

821 Seminar in Mass Communications
Revolving topics with focus on the social impact of mass communications. Subject areas include: media and the socialization process, erotica, theory of mass entertainment, media and violence, the media and minority problems. Prerequisite, permission of instructor.

861 Seminar in Contemporary Rhetorical Practice and Criticism
Intensive study and analysis of the speaking and writing generated by a major public controversy, 1930 to the present.

896 Special Problems
Independent study in special subjects for advanced doctoral level students.
Credit, 1-3 each semester; maximum credit, 9.

899 Doctoral Dissertation
Credit, 12.

Graduate Faculty

Elizabeth P. Petroff, *Assistant Professor and Acting Chairman of the Department of Comparative Literature,* B.S.,.Ed. Northwestern, 1960; M.A., California at Berkeley, 1964; Ph.D., 1972.

C. William Moebius, *Associate Professor and Graduate Program Director,* B.A., Lawrence (Wis.), 1963; Ph.D.,S.U.N.Y. at Buffalo, 1969.

Warren D. Anderson, *Professor,* B.A., Haverford, 1942; B.A., Oxon, 1949; M.A., Harvard, 1947; Ph.D., 1954.

Sarah N. Lawall, *Professor,* B.A. Oberlin, 1956; Ph.D., Yale, 1961.

David R. Lenson, *Associate Professor,* B.A., Princeton, 1967; M.A., 1970; Ph.D., 1971.

Don E. Levine, *Assistant Professor,* B.A., Columbia, 1964; M.A., Princeton, 1967; Ph.D., 1972.

Ellen McCracken, *Assistant Professor,* B.A., Santa Clara, 1969: Ph.D., California at San Diego, 1977.

Lucien M. Miller, *Associate Professor,* B.A., California at Berkeley, 1961; M.A., 1963; Ph.D., 1970.

Maria Tymoczko, *Assistant Professor,* B.A., Radcliffe, 1965: M.A., Harvard, 1968; Ph.D., Harvard, 1973.

Frederic Will, *Professor,* B.A., Indiana, 1949; Ph.D., Yale, 1954.

Associated Faculty

Eric M. Beekman, *Associate Professor of Germanic Languages and Literatures.*

Thomas Cassirer, *Professor of French*

Robert Creed, *Professor of English.*

Donald R. Freeman, *Professor of English,* Temple University.

Arthur F. Kinney, *Professor of English.*

Sara Lennox, *Assistant Professor of Germanic Languages and Literatures.*

Julius Lester, *Lecturer in Afro-American Studies.*

Paul Mankin, *Professor of French.*

Paul L. Mariani, *Professor of English.*

William E. Naff, *Associate Professor of Japanese.*

Alex R. Page, *Professor of English.*

Dennis Porter, *Associate Professor of French.*

Eva Schiffer, *Associate Professor of Germanic Languages and Literatures.*

Sara Sturm Maddox, *Professor of French and Italian.*

Laszlo M. Tikos, *Professor of Slavic Languages and Literatures.*

Associated Five-College Graduate Faculty

Edith Kern, *Doris Silbert Professor of Comparative Literature* (Smith College).

The Department of Comparative Literature offers graduate work leading to the degrees of Master of Arts and Doctor of Philosophy. Facilities and staff are available for specialized work in classical tradition studies and in medieval, Renaissance, Romantic, modern and contemporary European literature, as well as in literary theory and criticism. Courses or seminars dealing with genres, themes, or movements are regularly offered as well. It is also possible to specialize in the study of Dutch literature or of classical and modern Chinese and Japanese literature. Graduate courses in Comparative Literature are open to all qualified graduate students and may, with prior approval of the other department or program concerned, be taken to meet a foreign language requirement.

Prerequisites for Admission to the M.A. or Ph.D. Program

(beyond the usual requirements of the Graduate School).

Undergraduate Degree
Applicants must possess a bachelor's degree or a recognized foreign equivalent, either with a major in a language-literature field or awarded upon completion of substantial literary studies.

Languages
All applicants are required to have studied at least two major languages besides English. One of the two must be either French or German. Ph.D. applicants should have completed at least three years' study of their first foreign language, and two of their second. M.A. applicants should have completed at least three years of their first foreign language and one year of their second. Ph.D. candidates are expected to show competence in one ancient language (Greek, Latin, Classical Chinese, etc.)

An entering student who does not show lang
uage competence by previous study ma
demonstrate competence in one of th
following ways: a) An examination, norma
ly to be administered by the appropriat
language department; b) Two semesters c
undergraduate courses beyond the gramma
level, passed with a grade of B or better; c
One graduate course or seminar in th
appropriate language department, passe
with a grade of B or better.

Grade Point Average
The applicant should have a grade poir
average equivalent to at least 3.0 out of
possible 4.0.

Examinations
Applicants are required to have taken th
Graduate Record Examination before apply
ing, or to take it at the earliest opportunit
thereafter. Non-native speakers of Englis
are required to take the Test of English as
Foreign Language (TOEFL.)

Written work
Applicants are required to submit directly t
the Department an example of their writte
work with their application. This should dem
onstrate critical handling of literary material
preferably including non-English texts. Th
paper need not be written in English.

THE DOCTOR OF PHILOSOPHY DEGREE

Qualification
Successful completion of the qualifying pro
cedure entitles the student to M.A. degre
candidacy, and enables him or her to proceed
with preparations for the Preliminary Com
prehensive Examination, beginning with th
formation of a guidance committee. Th
qualifying procedure involves competence i
foreign languages and satisfactory perfor
mance on a qualifying examination to be bas
ed on reading lists prepared by the studen
and the student's advisory committee. The ex
amination will include both written and ora
portions: the total time for the examinatio
will be about three hours.

Languages
Students are required to demonstrate com
petence in two foreign languages, one o
which may be Latin or Greek. This require
ment may be met by a satisfactory perfor
mance in a two-hour written examination
other options are also available. Students i
European literature must offer a workin
knowlege of both French and German.

Program of Study
The balance among the main constituen

ements of a candidate's course of study will cessarily vary with individual circumances. The following kinds of competence, owever, are taken to characterize the holder a Ph.D. in Comparative Literature: a nowledge of one language and its literature fficient to warrant the respect of specialists; reading knowledge of three major European Oriental languages (ancient or modern) in ldition to English; a wide command of the erature of one main historical period; abili- to make serviceable use of at least three eratures, one of which may be English; a ading competence in a classical language; id training in research method, literary anslation, and problems of criticism.

equirements

ork in the major literature requires histor- al coverage from the earliest literary forms the language to the present, with emphasis ther on a genre or on a major period, and a orough reading knowledge of the language. ork in the second and third literatures re- ires coverage of the period or genre related the field of emphasis in the major lit- ature. Reading knowledge of the languages volved should be very good in the case of the cond literature and good in the case of the ird. Finally, work in comparative Literature urses and seminars will be determined ac- rding to the candidate's needs in acquiring ility to deal with the broad demands of the scipline and the more limited ones of his or r special field.

eliminary Comprehensive Examination

he Comprehensive Committee works with e student to formulate the list of topics on nich the Comprehensive Examination is bas- . A topic is a conceptual issue of con- derable breadth. The purpose of the in- vidual topic is to permit the exploration and nthesis of a critical problem within a broad ectrum of literary expressions, works, au- ors, and traditions. More than one critical proach to individual literary texts shall be flected among the topics.

ne examination will include both written id oral portions, and also a passage for tex- al analysis. Students have the option of iting substantial papers to satisfy a number topics. Successful completion of this ex- nination allows the candidate to proceed to e dissertation.

he Dissertation

ne dissertation may deal with any subject in erary history, or with the comparison of xts, in the original languages of works from o or more literatures. A translation dissertа- n may be proposed, provided that it is pre- ced by an extensive introduction, with a level of analysis appropriate to a doctoral dissertation. The introduction should deal with theories and specific problems of the translation.

THE MASTER OF ARTS DEGREE

Two types of M.A. degrees are offered in Comparative Literature. Students who do not plan to proceed to the Ph.D. will normally choose the M.A. with thesis; the M.A. without thesis should be elected as a degree plan by students planning doctoral study.

Program of Study

A minimum of 30 credit hours is required in all cases, distributed as follows: for the M.A. *with* thesis, 6 graduate credits in a major literature, 3 in a second literature studied in the original language, and 6 graduate credits in Comparative Literature; for the M.A. *without* thesis, 9 graduate credits in a major literature, 6 in a second literature studied in the original language, and 9 graduate credits in Comparative Literature. One of the Comparative Literature courses must be Comparative Literature 552 *Theories of Comparative Literature;* another must be a course that combines theoretical perspectives with practical criticism. Of the 30 required credit hours, 6 graduate credits are considered elective.

Examinations

All candidates for the M.A. are required to take an examination that will include both written and oral portions: the total time for the examination will be about three hours.

Thesis

The thesis is intended to demonstrate ability to formulate and explore a specific literary problem. The student must present a brief prospectus to the advisory committee for approval. A thesis consisting of a translation preceded by a substantial critical introduction may be approved, subject to conditions similar to those applying to doctoral translation dissertations.

All courses carry 3 credits unless otherwise specified.

501 Literature and Music
Relations between literature and music from Plato to Samuel Beckett. Emphasis on the aesthetics of Schopenhauer and the Wagnerian synthesis.

512 European Epic Poetry
Literary analysis of major classical and Renaissance epics. Emphasis on their intrinsic qualities as works of art. Specific epic techniques and the epic tradition.

513 The Literary Genre
Study of a major or minor category of literature through theoretical approaches and the close reading of representative texts from several literatures. Topics may include the concept of genre itself.

514 The Symbolist Movement
The development of symbolism in English, French, and German of the 19th and 20th centuries.

515 Modern Drama
Currents in Western drama since Ibsen: Naturalism, symbolism, neo-Romanticism, expressionism, folk drama and fantasy, epic realism, and the "grotesque" or "absurd" theatre are possible topics.

516 Contemporary Novel
Commitment and innovation in the modern novel. The nature of literary and extraliterary influences, trends, and themes that define and establish the current major traditions of the novel.

523 Renaissance Perspectives
The tradition of the Middle Ages, the heritage of the Renaissance—the rhetoric of writing and the arts of reading and interpretation as handed down to the Renaissance.

524 The Shape of the Renaissance
Diversity and change of literary style in the 15th and 16th centuries. Emphasis on cultural continuity. An examination of critical method.

526 The Enlightenment
Characteristic ideas, themes, and attitudes in 18th-century European literature. Focus on major representatives of the Age of Reason.

527 Romanticism
The Romantic movement in Western literature as exemplified by its principal figures from the age of Rousseau to 1850.

528 From Idealism to Realism
Developments such as realism, naturalism, aestheticism, and neo-Romanticism in the literatures of England, France, Germany, and Russia, seen against the background of 18th-century idealism.

Computer and Information Science

551 Theory and Practice of Translation
The history of translation theory. Intensive practical experience in translating poetry and prose.

552 Theory and Practice of Comparative Literature
Major theories concerning the nature and proper province of comparative literature. Emphasis on their significance for graduate study.

601 Literary Criticism I: Classic to Neoclassic
Problems in critical theory prior to the modern period. Not necessarily chronological or limited to Occidental critics.

602 Literary Criticism II: Introduction to the History of Consciousness
Modern crises of consciousness, ethics, and form, as manifested in seminal works of avant-garde criticism and fiction.

701 International Literary Relations
Subjects and problems common to two or more different national literatures. The interplay between text, language, history, and nationality.

703 Contemporary Theories of Literature
Intensive study of theories of literature which have importance for contemporary criticism and scholarship.

780 Bibliography and Methods of Literary Research
Introduction to the bibliography and methodology of comparative studies in literature.

797 Special Problems
Directed study of some problem in comparative literature. May be repeated for credit.
Credit, 2-6.

891 Seminar
Intensive, advanced study of a topic in comparative literature.
Credit, 3-6.

899 Doctoral Dissertation
Credit, 10.

Graduate Faculty

Robert M. Graham, *Professor and Chairman of the Department of Computer and Information Science,* B.A., Michigan, 1956, M.A., 1957.

Caxton C. Foster, *Professor and Graduate Program Director,* B.S., Massachusetts Institute of Technology, 1950; M.S., Michigan, 1957; Ph.D., 1965.

Michael A. Arbib, *Professor, Director of the Center for Systems Neuroscience, and Adjunct Professor of Psychology,* B.S., University of Sydney, 1961; Ph.D., Massachusetts Institute of Technology, 1963.

Lori A. Clarke, *Assistant Professor,* B.A., University of Rochester, 1969; Ph.D., Colorado, 1976.

William L. Kilmer, *Professor,* B.S., Pennsylvania State, 1954; M.S., 1955; Ph.D., Michigan, 1958.

Victor R. Lesser, *Assistant Professor,* A.B., Cornell, 1966; M.S., Ph.D., Stanford, 1972.

Robert N. Moll, *Assistant Professor,* B.S., Carnegie-Mellon, 1967; M.S., 1968; Ph.D., Massachusetts Institute of Technology, 1973.

Edward M. Riseman, *Associate Professor,* B.S., Clarkson College of Technology, 1964; M.S., Cornell, 1966; Ph.D., 1969.

D. N. Spinelli, *Professor and Adjunct Professor of Psychology,* Liceum G. Parini, 1954; M.D. in Medicine and Surgery, University of Milan Medical School, 1958.

Richard L. Tenney, *Assistant Professor,* B.A., California at Los Angeles, 1965; M.S., Cornell, 1969; Ph.D., 1972.

Jack C. Wileden, *Assistant Professor,* A.B., Michigan, 1972: M.S., 1973: Ph.D., 1977.

Conrad A. Wogrin, *Professor and Director of the University Computing Center,* B. Eng., Yale, 1949, M. Eng., 1951; Eng. D., 1955.

Adjunct Faculty

Richard H. Eckhouse, Jr., *Adjunct Associate Professor,* B.E.E., Cornell, 1962; M.S., Illinois, 1963; Ph.D., S.U.N.Y. at Buffalo, 1971.

Henry F. Ledgard, *Adjunct Associate Professor,* B.S., Tufts, 1964: M.S., Massachusetts Institute of Technology, 1966; Ph.D., 1969.

Oliver G. Selfridge, *Adjunct Professor,* S.B., Massachusetts Institute of Technology, 1945.

David W. Stemple, *Adjunct Assistant Professor,* A.B., West Virginia, 1959: M.S., 1960: Ph.D., Massachusetts, 1977.

Affiliated Faculty

Frederick H. Edwards, *Associate Professor of Electrical and Computer Engineering.*

Roger W. Ehrich, *Associate Professor of Electrical and Computer Engineering.*

Allen R. Hanson, *Assistant Professor of Language and Communication,* Hampshire College.

Walter H. Kohler, *Assistant Professor of Electrical and Computer Engineering.*

Ernest G. Manes, *Associate Professor of Mathematics.*

Howard A. Peelle, *Assistant Professor of Education.*

Alan Prince, *Assistant Professor of Linguistics.*

Thomas Roeper, *Assistant Professor of Linguistics.*

Kenan Sahin, *Associate Professor of Management.*

George S. Sacerdote, *Assistant Professor of Mathematics,* Amherst College.

Harold Stone, *Professor of Electrical and Computer Engineering.*

Edwin Williams, *Assistant Professor of Linguistics.*

The Department of Computer and Inform tion Science (COINS) offers the M.S. ar Ph.D. degree in the three focal areas computer systems, theory of computati and cybernetics. Comprehensive course c ferings are available, and active research on-going, in each of these areas, as well as inter-area fields. Active collaboration maintained with colleagues in such diver schools and departments as Art, Busines Education, Electrical and Computer Eng eering, Linguistics, Mathematics, Psycholg and Zoology. Students are encouraged take advantage of these interdepartment links to enrich their university experience.

Students in the graduate program have d rect access to excellent computer faciliti and a lively on-going series of guest seminar In addition, most advanced students w

vish to take part in the research seminars 791 A, B, C) in their own area of concentration.

To be admitted to full graduate status in COINS, candidates should be holders of B.S. or B.A. degrees, with good academic records and recommendations, and have either a major in Computer Science or exhibit a good knowledge of computer programming and college mathematics. Students are expected to have mastered the equivalent of COINS 122, 201, and 287, MATH 131, 132, and 236, and STAT 415.

Students who have already studied computer science will note that at most six credits may be transferred from other institutions, and these must be of a grade B or better. It is the policy of the department to grant such transfer credit sparingly, since the program is sufficiently rich for most students to be able to take a full 24 units of course credit to their advantage.

COINS has an *affirmative action goal* of increasing the number of women and minority members in the student body. There is an increasing realization of the crucial role played by technology in the complexities of modern society; and a consequent desire for involvement in such fields as computer and information science. Unfortunately, many otherwise excellent candidates are lost to the field because of a weak undergraduate background in mathematics. However, in most instances students with a capability for problem solving can master the necessary background in a semester or two if their academic standing in their undergraduate major is comparable to that of other students admitted to the COINS program.

To this end the department is developing a program of background study in computer mathematics and programming, and invites applications from students in need of such a program, especially from women and minority members. Students admitted on this basis will be expected to complete their background study in one or two semesters with performance at B average or better automatically entitling them to regular candidacy in the M.S. program. (Credits in background courses obtained during this period will *not* count towards COINS graduate degrees.)

THE MASTER OF SCIENCE DEGREE

The following are the requirements for the M.S. degree in Computer and Information Science:

1. Each student shall pass with a grade of B or better each core course—COINS 502, 503, and 601.

2. Each student shall take at least two COINS 700 series courses other than 701.

3. Each student shall take 6 units of COINS 701 Project. The project must be completed in one semester, with a grade of B or better. Students are required to plan their project in the semester preceding that in which they register for 701. A written proposal must be approved by two faculty members as first and second readers, and submitted to the Graduate Program Director by the preregistration day preceding the semester of registration.

4. Each student shall take additional graduate courses, chosen with the approval of the adviser, to satisfy the 30-credit requirement for the M.S. degree. In addition to the above grade requirements, each student must have an overall grade average of at least B in the 30 credits required for graduation.

5. Students entering with deficiencies are required to remove these deficiencies within one calendar year from acceptance into the program.

6. Advanced standing in any core course may be achieved by an examination given by the faculty in the appropriate area.

THE DOCTOR OF PHILOSOPHY DEGREE

To be confirmed in their candidacy for the Ph.D. Degree, students must pass the Ph.D. qualifying exam, which is offered in February and September of every year. This exam must be passed by the beginning of the third regular semester after receiving the M.S. Degree or by the beginning of the fifth regular semester after entering the graduate program as a full-time student, whichever is sooner. Students may not take the exam more than twice.

In addition to course work appropriate to the M.S. degree, Ph.D. students are required to take some six 700-level courses from both within and without the department to lay a firm basis for thesis research. There is no formal language requirement for the degree. Students are discouraged from taking more than two or three years beyond the M.S. to complete their Ph.D. degree. M.S. candidates intending to proceed to the Ph.D. should choose their 701 projects with this time restriction in mind. Other conditions for the Ph.D. are as listed under general University requirements.

All courses carry 3 credits unless otherwise specified.

502 Fundamentals of Computing Systems
Core concepts of computer software and hardware, including syntax, semantics and implementation models; data structures and accessing strategies; operating systems, control programs and languages, and machine architecture. Prerequisite, COINS 230; COINS 201 recommended.

503 Fundamentals of Cybernetics
Integrates brain analysis and artificial intelligence to convey a basic understanding of systems and neural networks, modelling, feedback; planning of complex behavior in the brains of animals and the control computers of robots. Prerequisite, COINS 122 or background in biology or psychology.

505 Social Implications of Computer and Information Science
For students with a good background in COINS. The social implications of systems with a large computer component. Stress on the case study of two such systems. Such systems include government data banks; decision-making networks; computer utilities; 'intelligent' information retrieval systems; assembly line automation; credit card systems. Prerequisites, COINS 320 and 503.

510 Translator Design
The basic problems in the translation of programming languages: exploration of some of the common implementation techniques. Centers around the construction of a compiler for a fragment of a programming language similar to FORTRAN and PL/1. Prerequisite, COINS 502.

533 Mini Computers
The use of small-scale digital computers for data gathering, analysis and on-line control of experiments. Interfacing computers and logical design of input/output facilities. Prerequisite, programming experience.

535 Computer Architecture
The various elements of computer design with particular reference to the historical influence of certain real computers and the concepts behind them. Prerequisite, COINS 201.

550 Statistical Foundations of Computer Simulation
A number of statistical techniques in-

terwoven with applications to computer science: binomial and other distributions, sampling, random numbers, inference, regression and correlation, Monte Carlo integration, queueing problems. Brief introduction to simulation languages. Prerequisites, MATH 236, STAT 415, and COINS 122.

577 Introduction to Operating Systems
A study of the programs and techniques needed to transform computer hardware into a comprehensive computer. Topics include input/output control systems, mono-programming, multi-programming, and multi-processing. Prerequisite, COINS 502.

583 Artificial Intelligence
Introduction to techniques involved in development of intelligent machines. Game-playing; mathematical problem solving; mathematical theory of heuristic search; robotics, vision, and planning; knowledge representation; automatic theorem-proving; question answering systems; natural language processing. Prerequisite, COINS 503.

585 Ecological Cybernetics
Study of ecological systems using differential equations and computer simulations. Eigenvalues and stability. Time-delays and resource depletion. Species coexistence. Models of fisheries, epidemics, genetic coadaptation, bird flocking. Prerequisites, basic calculus, statistics and programming.

601 Fundamentals of Computation
Algorithms, languages, and machines; recursion and induction; state diagrams, switching theory, and regular sets; trees; formal grammars; syntax and semantics; proving properties of programs. Prerequisite, Math 235 or equivalent.

701 Advanced Topics in Computer Science
A project-type course for second-year graduates. Moderately large projects of implementation, design of computers, languages, operating systems, cybernetic simulation, theoretical integration, etc. Prerequisite, permission of instructor.
Credit, 6.

710 Advanced Translator Design
Current topics in compiler writing. Topics vary from year to year. Areas examined in the past include code generation, optimization, detection of parallel tasks in straight line code, compiler-compilers, abstract data types, and compiler verification. Prerequisite, COINS 510.

711 Syntactic Analysis
An introduction to the concepts and techniques of syntactical analysis with respect to context-free grammars, the recognitive processes involved in the analysis and generative algorithms of computer translators. Prerequisites, COINS 601 and 510.

720 Development of Quality Software
Current topics in program development. Topics may include program development methods, automated validation systems, testing systems, and program verification techniques. Prerequisite, COINS 320.

735 Advanced Computer Architecture
Topics vary from year to year. In the past we have considered parallel architectures, micro computers and content addressable machines. Prerequisite, COINS 535.

741 Computability and Complexity
The idea of recursion; algebraic and machine characterizations; hierarchies of partial recursive functions; complexity of computation by both axiomatic and machine-oriented criteria; speed-up and gap theorems. Prerequisites, COINS 601 or Math 581.

743 Topics in Theory of Computation
Algebraic automata theory; advanced topics in language theory; theory of problem-solving in hierarchically structured systems; theory of theorem proving. Topics vary from year to year. Prerequisite, COINS 601.

762 Foundations of Programming Languages
Fundamental concepts underlying higher-level languages. Methods of syntactic and semantic definition; mathematical models of Scott and Strachey; models for assignment, transfer of control, block structure and procedures. Prerequisite, COINS 601 and 502.

775 Combinatorial Theory and its Applications
The solution of problems of enumeration using permutations and combinations, generating functions, and recurrence relations. Introduction to graph theory, linear and dynamic programming. Block designs. Applications. Prerequisite, COINS 601.

777 Advanced Operating Systems
Systems analysis, feasibility studies an applicable techniques of operating sy tems. Input/output file control system on-line applications, case studies, d sign and use of exended machine la guage function facilities for systems pr gramming. Prerequisites, COINS 5 and 577.

782 Computational Cybernetics
Computer simulation models of the r ticular formation; the frog's visual sy tem; learning equations; a compariso of models of the cerebellum; archico tex and neocortex; statistical neuron processing; action-oriented model human vision. Prerequisite, COIN 503.

784 Pattern Recognition
Techniques of pattern recognition; o tical character recognition; feature e traction and contextual cuing; autom ta and grammars for two-dimension patterns; statistical decision theor scene analysis. Prerequisites, COIN 583 and 503.

787 Data Base Management
An introduction to database design pr blems and the need for database ma agement. Some of the data structur and access methods most common used in database management system Major topics include: data models wit emphasis on the Codasyl and relation models, data independence, data d scription languages, logical to physic mapping, and data integrity contro An overview of certain database ma agement systems. Prerequisite, COIN 287.

791 Seminar on Computer and Information Science
Conferences, reports and lectures o topics not currently covered in regul courses. Prerequisite, permission of i structor.
Credit, 1-6.

899 Doctoral Dissertation.
Credit, 10.

In addition to the above courses, students are advised to take course in other departments such as:

Electrical and Computer Engineering

544 Programming Structures

62 Self-Organizing Systems and Pattern Recognition

46 Analog and Hybrid Computers

48 Advanced Switching Theory

02 Algebra and Coding

50 Graph Theory and Its Applications

Linguistics

03 Generative Phonology

10 Semantics and Generative Grammar

Mathematics

35 Lattice Theory

45,646 Advanced Applied Mathematics

Philosophy

13,514 Mathematical Logic

Psychology

11,712 Sensory Processes

14 Perception

17,618 Human Information Processing

40 Quantitative Methods in Psychology

30 Physiological Psychology

31 The Neuroanatomical Basis of Behavior

33 Psychopharmacology

Zoology

70 Comparative Neurophysiology

Graduate Faculty

Donald W. Katzner, *Professor and Chairman of the Department of Economics,* B.A., Oberlin, 1959; M.A., Minnesota, 1962; Ph.D., 1965.

Marshall C. Howard, *Professor and Graduate Program Director,* A.B., Princeton, 1941; Ph.D., Cornell, 1951.

Norman D. Aitken, *Associate Professor,* B.A., Cincinnati, 1961; Ph.D., Tennessee, 1967.

Michael H. Best, *Associate Professor,* B.A., Washington, 1963; M.A., Oregon, 1967; Ph.D., 1969.

Samuel S. Bowles, *Professor,* B.A., Yale, 1960; Ph.D., Harvard, 1965.

Lucy A. Cardwell, *Assistant Professor,* B.A., Washington University, 1966: Ph.D., Mass Institute of Technology, 1973.

James C. Cox, *Associate Professor,* B.A., California at Davis, 1965; M.A., Harvard, 1968; Ph.D., 1970.

James Crotty, *Associate Professor,* B.S., Fordham, 1961; M.S., Carnegie-Mellon, 1963; Ph.D., 1973.

Gerald E. Duguay, *Assistant Professor,* B.S., Rhode Island, 1963: M.A., Fairleigh Dickinson, 1969: Ph.D., California at Berkeley, 1977.

Richard C. Edwards, *Assistant Professor,* B.A., Grinnell, 1966; Ph.D., Harvard, 1972.

Diane P. Flaherty, *Assistant Professor,* B.A., Barnard, 1968; M.A., New York University, 1971; Ph.D., 1978.

Bradley T. Gale, *Associate Professor,* B.S., Worcester Polytechnic Institute, 1964; M.A., Massachusetts, 1965; Ph.D., Rutgers, 1968.

William A. Gibson, *Assistant Professor,* B.S., Georgia Inst. of Technology, 1970; M.B.A., California at Berkeley, 1974; Ph.D., 1977.

Herbert Gintis, *Professor,* B.A., Pennsylvania, 1961; M.A., Harvard, 1962; Ph.D., 1969.

Vaclav Holesovsky, *Professor,* Diploma in Political Sciences, Paris, 1950; M.A., 1958; Ph.D., Columbia, 1964.

K. Jane Humphries, *Assistant Professor,* B.A., Newnham College, Cambridge, 1970; M.A., Cornell, 1973; Ph.D., 1973.

James K. Kindahl, *Professor,* B.A., Chicago, 1951; M.B.A., 1953; Ph.D., 1958.

Leonard A. Rapping, *Professor,* B.A., California at Los Angeles, 1956; M.A., Chicago, 1958; Ph.D., 1961.

Stephen A. Resnick, *Professor,* B.S., University of Pennsylvania, 1960; Ph.D., Massachusetts Institute of Technology, 1964.

Simon Rottenberg, *Professor,* B.A., George Washington, 1939; M.A., Harvard, 1948; Ph.D., 1950.

George I.Treyz, *Associate Professor,* A.B., Princeton, 1958; Ph.D., Cornell, 1967.

Douglas W. Vickers, *Professor,* B.Com., Queensland, 1949; B.S. London, 1952; Ph.D., 1956; A.M., Pennsylvania, 1971.

Che S.Tsao, *Associate Professor,* B.S., Chung Hsing University, 1955; M.S., Wisconsin, 1964; Ph.D., 1966.

Richard D. Wolff, *Associate Professor,* B.A., Harvard, 1963; M.A., Stanford, 1964; M.A., Yale, 1967; Ph.D., 1969.

Arthur W. Wright, *Associate Professor,* B.A., Haverford, 1960; Ph.D., Massachusetts Institute of Technology,1969.

Fields of Concentration

Programs of graduate study in Economics are offered in the following fields of specialization: Comparative Economic Systems; Econometrics; Economic Development; Economic History; History of Economic Thought; Human Resource Economics; Industrial Organization and Regulation; International Economics; Labor Economics; Macroeconomic Theory; Marxian Economic Theory; Microeconomic Theory; Monetary Theory and Policy; Political Economy; Public Finance.

THE MASTER OF ARTS DEGREE PROGRAM

Entrance and Admission Requirements

All entering students must have completed at least one semester of each of intermediate micro theory, intermediate macro theory, and calculus. All applicants must take the verbal and quantitative Graduate Record Examinations; the advanced test is not required. Foreign applicants, in addition, must take the Test of English as a Foreign Language (TOEFL) and achieve a minimum score of 550.

Degree Requirements
All candidates for the M.A. are required to complete 36 graduate credits subject to the following restrictions: Twelve credits must be earned in 600 to 800 series courses; candidates must take one semester each of microeconomic theory, macroeconomic theory, mathematical methods in economics, and econometrics; 21 of the credits must be taken within the Department of Economics. The candidate must earn grades of B or better in the four required courses, and maintain a 3.0 average overall. M.A. candidates have the option of submitting a thesis, which counts for between 6 and 9 semester credit hours.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM

Entrance and Admission Requirements
Requirements are the same as for the M.A. Program. It is strongly recommended, however, that the entering student also have completed a second semester of calculus and one semester of linear algebra. Persons applying for the Ph.D. Program without the M.A. may be required to complete the M.A. Program first. Because core required courses are given in a particular sequence, the applicant should apply for admission in the fall semester unless he/she has already completed some graduate work in Economics.

Degree Requirements
Ph.D. candidates write comprehensive examinations in micro and macro economic theory, economic history, and the history of economic thought. The candidate may offer Marxian economic theory on the comprehensives as an alternative to heavier concentration in micro or macro theory. Course work in mathematical methods in economics and also in econometrics is required. A requirement of accomplishment in at least two fields is met by satisfactory completion of at least two courses in each field. Graduate courses in other departments may be used to meet all or part of one field requirement.

All courses carry 3 credits unless otherwise specified.

505 Marxian Economics
Exposition of the Marxian economic theory in modern idiom. Comparison of methodological assumptions and conceptualization of economic phenomena in Marx and in "mainstream economics." Prerequisite, Econ 103.
Mr. Crotty, Mr. Gibson, Mr. Holesovsky, Mr. Resnick

511 Money and Banking
The development and operation of the monetary and banking systems of the United States; problems of achieving full employment and price stability through monetary controls.
Mr. Vickers

512 Money, Income and Monetary Policy
The relationships among money, income, and monetary policy, and among individuals, banks, money markets, governments and central banks. Prerequisite, either Econ 311 or Finance (210). Mr. Vickers

513 Public Finance
Principles of public revenues and expenditures; systems and problems of taxation; use of taxes; expenditures, debt policy to provide full employment; economic growth and price stability. Prerequisite, Econ 103. Mr. Cox

514 State and Local Public Finance
State and local government revenue and expenditure programs. Individual research projects relating to Massachusetts or surrounding states required. Prerequisite, Econ 100 or 103.

531 The Structure of American Industry
Business enterprise, market competition, and economic development in American industries. The social effectiveness of industries analyzed through measures of industrial structure and market performance. Prerequisites, Econ 103 and 203 recommended.
Mr. Edwards, Mr. Gale, Mr. Howard.

532 Social Control of Business
The formal and informal methods and efforts to maintain, supplement, and moderate competition, and the substitution of regulation and public enterprises for competition. Prerequisite, Econ 103. Mr. Edwards, Mr. Howard

538 Economics of Health
Economic aspects of health care and ill-health and social policies relative to health care and prevention of ill-health.
Ms. Flaherty

541 Economic Security
Public and private programs to prevent or alleviate economic insecurity, including poverty, substandard incomes, and economic contingencies.

542 Labor Law and Legislation
Economic effects and historical surve of Federal and state laws and an analy sis of important court decisions. Prere quisite, Econ 141, or permission of in structor.

545 Human Resources Economics
Private and social means for providin access to higher education, housing medical care, and improved environ ment. Poverty, population concentra tion, and discrimination as barriers Policies and priorities in human re source development. Prerequisite, Ecor 103 or equivalent. Mr. Dugua

547 Economics of the Labor Market
A theoretical and empirical analysis o labor markets, utilizing primarily the tools developed in microeconomics, in cluding an introduction to labor-marke data and to the formulation and testing of economic models. Prerequisite, Ecor 203.

551 Mathematical Methods in Economics
The applications of various mathematical concepts and techniques in macroeconomic and microeconomic analysis. Emphasis on the design and interpretation of mathematical models of economic phenomenona. Prerequisites, Econ 103, 104, and calculus.

552 Econometrics
The application of mathematical and statistical methods to economic theory. Emphasis on the application to both microeconomic and macroeconomic policy issues. Prerequisite, permission of instructor. Mr. Duguay

567 Latin American Economic Development
Development of the Latin American economics with emphasis on the central problems of the various economies and proposed economic programs. Prerequisite, Econ 366 (266) or permission of instructor. Mr. Best

570 Economics of Soviet Planning
Theoretical analysis of the Soviet economy: growth models; measurement of growth and factor productivity; centralized planning and decentralization; investment criteria; foreign trade; other. Prerequisites, Econ 103 or 203, or permission of instructor.
Mr. Holesovsky, Mr. Wright

571 Comparative Economic Systems
Evaluation of the performance of alternative economic systems in theory and

practice. Problems of planning in the advanced economics of the United States, Western Europe, and Soviet area. Prerequisite, Econ 103.
Mr. Wright, Mr. Holesovsky

31 Regional Economics
The process of regional economic growth; location theory and basic techniques of regional analysis; public and private area development programs. Prerequisite, Econ 103; Econ 203 recommended. Mr. Aitken

32 Seminar in Urban & Regional Economics
Indepth study of varied aspects of urban and regional economics. Topics to be determined by interests of participants. Prerequisites, Econ 103 and 203, or permission of instructor. Mr. Aitken

01 Microeconomic Theory
Theory of the consumer, the firm, the industry, and their interactions. One semester terminal course. Prerequisite, Econ 203. Ms. Cardwell

05 Macroeconomic Theory
A systematic development of static and dynamic theories of aggregative economic behavior and their applications. One semester terminal course. Prerequisite, Econ 204. Mr. Treyz

01 Seminar in Economic Issues
Specific subject matter may vary from year to year.

09 Master's Thesis
Credit, 6-9

01,702 (I) (II) Microeconomic Theory
A systematic development of the theory of the consumer, the firm, the industry, and their interactions. Prerequisite, Econ 203. Mr. Katzner

03,704 (I) (II) General Economic History
Topics in the history of economic activity in the Western World.
Mr. Edwards, Mr. Resnick, Mr. Wolff

05,706 (I) (II) Macroeconomic Theory
A systematic development of static and dynamic theories of aggregative economic behavior and their applications. Prerequisite, Econ 204.
Mr. Costrell, Mr. Crotty, Mr. Rapping

07 History of Economic Thought
Treatment in depth of various topics within the history of economic thought.
Mr. Bowles, Mr. Gintis, Mr. Wolff

708 Marxian Economic Theory
An introduction to basic Marxian theory, including value theory, historical materialism, the structure of classes, dynamics of accumulation and the theory of alienation.
Mr. Bowles, Mr. Gintis, Mr. Wolff

709 Advanced Topics in Marxian Economics
Extension of the basic Marxian method, for advanced students. Prerequisite, Econ 708 (821).
Mr. Bowles, Mr. Gintis, Mr. Wolff

711 Monetary Theory
Relationship among the supply of money, interest rates, capital market, price levels and output. Prerequisite, Econ 705 or 605. Mr. Vickers

712 Monetary and Fiscal Policy
An analytical treatment of the effects of government and central bank policies intended to achieve such objectives as price stabilization and economic growth. Prerequisite, Econ 512 or permission of instructor. Mr. Vickers

713, 714 (I)(II) Public Finance
Theory of public goods and non-market allocation. Normative models of public expenditure and taxation. The integration of equity and efficiency considerations in evaluation of tax expenditure programs. Social discount rates and shadow prices of resources used in the public sector. The structure and incidence of U.S. taxes. Discussion of tax reform proposals. Fiscal federalism and proposals for federal revenue-sharing. Prerequisite, Econ 701 or permission of instructor. Mr. Cox

721 International Finance
An analysis of the properties of foreign exchange markets, adjustment mechanisms, speculation, capital flows, transfer problems and the relationship between balance of payments correctives and domestic policy goals. Prerequisite, Econ 204 or permission of instructor. Mr. Aitken, Mr. Gibson

722 International Trade Theory
The pure theory of international trade. The reasons for trade, the gains from trade, factor price equalization, commercial, policy, trade and economic development, and customs unions.
Mr. Aitken, Mr. Gibson

731 Industrial Organization
A survey of the literature on the market structure, conduct, and performance of industry. Prerequisite, Econ 203 or permission of instructor.
Mr. Howard, Mr. Gale

732 Industrial Regulation
A survey of the literature on controls extended by government over the business sector of the economy. Prerequisite, Econ 203 or permission of instructor.
Mr. Howard, Mr. Gale

741 Collective Bargaining
The legal background of collective bargaining, the process, subject matter, and problems involved. Individual case problems. Prerequisite, Econ 141.

743 Wage Theory and Wage Relationships
Theoretical and institutional study of theories of wages and wage structure. Prerequisite, Econ 141.

745 Labor Dispute Settlement
Ways of settling labor disputes, including grievance proceedings, arbitrations, and presidential intervention. Prerequisite, Econ 141.

746 Comparative Labor Movements
Labor movements in various countries with an analysis of their similarities and differences. Prerequisites, Econ 141.
Mr. Barkin

747 Manpower Development
A critical examination of current manpower policies and problems. The quantity and quality of manpower resources, problems of labor employment and mobility. Adjustment policies and research tools are reviewed. Prerequisite, Econ 141.

751 Mathematical Methods in Economics
The various modern applications of mathematics to economic analysis. Both static and dynamic processes. Prerequisite, one semester calculus.
Mr. Kindahl

752, 753 (I)(II) Econometrics
The application of modern statistical methods to micro- and macroeconomic theory formulated in mathematical terms. Prerequisite, Econ 751 or equivalent. Mr. Kindahl

765 Economic Development: Structural Problems
The concept of economic development and the structural changes needed in underdeveloped countries to permit development. Prerequisite, 15 hours of economics.
Ms. Humphries, Mr. Best, Mr. Resnick

766 Economic Development: Policy Issues
Policy decisions involved in efforts of underdeveloped countries to induce development. Prerequisite, Econ 765.
Ms. Humphries, Mr. Best, Mr. Resnick

773 Theories of Economic Systems
The theory of alternative economic systems, of national economic planning, and of resource allocation under different systems.
Mr. Holesovsky, Mr. Wright

774 Selected Topics in Soviet and East-European Economies
Application of advanced economic theory to selected major problems of planned economics of the Soviet type.
Mr. Holesovsky.

781, 782 (I)(II) Human Resource and Labor Market Economics
A theoretical and empirical analysis of human resource and labor market problems using primarily the tools developed in microeconomics and statistics. First semester is a general survey of research in the area; second semester is an intensive analysis of selected topics. Prerequisite for 781—Econ 201/501 or permission of instructor. Prerequisite for 782—Econ 781 or permission of instructor.

785, 786 (I) (II) Political Economy of Capitalism
Mutual interaction of social relations of production, forces of production, and class. Roles of the state, surplus and capital accumulation, imperialism, sexism, racism in development and maintenance of capitalist system.
Mr. Bowles, Mr. Gintis

791 Seminar in Economic Issues
Specific subject matter may vary from year to year.

796 Special Studies in Economics
Credit, 2-9 each semester.

801,802 Topics in Theoretical Welfare Economics
Recent developments in theoretical welfare economics, following introduction to Pareto optimum conditions in general equilibrium. Properties of allocation mechanisms and their adequacy for achieving Pareto optima. Prerequisites, Econ 701, 702. Mr. Wright, Mr. Cox

803 Topics in the Economics of Uncertainty
Recent developments in the theory and application of expected utility and decision theory. Discussion of experimental studies of choice under uncertainty. Some degree of mathematical sophistication required. Prerequisite, Econ 701, 702. Mr. Cox

804 Economic Models of Natural Resources and the Environment
Theoretical economic models of the institutional, technological, and economic features of natural-resource utilization. Economic analysis of public-policy problems. Public control techniques. Some degree of mathematical sophistication required. Mr. Cox

851,852 (I) (II) Seminar in Quantitative Economics
For advanced students with interest in econometrics. Weekly seminars are of two kinds: (1) lectures on advanced topics, especially new theoretical developments; (2) discussion of econometric and other empirical studies in process by members of the seminar, by other students and faculty, and by visiting speakers. Emphasis on the use of econometric tools in economic research. Prerequisite, Econ 753 or permission of instructor. Mr. Gale, Mr. Treyz
Credit, 3 each semester

891,892 (I) (II) Seminar in Economic Theory
Development of models of economic processes, with emphasis on analysis in depth. Specific subject matter may vary from year to year.
Credit, 3 each semester. Mr. Bowles, Mr. Gintis, Mr. Rapping

899 Doctoral Dissertation
Credit, 15.

Education

Graduate Faculty

Mario Fantini, *Professor and Dean of th School of Education,* B.A., Temple; M.A Ed.D., Harvard, 1971.

Grace J. Craig, *Professor and Acting Associate Dean,* B.A., Massachusetts, 195 M.S., 1962; Ph.D., 1967.

Norma Jean Anderson, *Professor and Assistant Dean for Graduate Affairs,* B.S. Illinois, 1956; M.Ed., 1961; Ed.D., 1966.

Richard J. Clark, Jr., *Associate Professo and Assistant Dean for Program Planning and Development,* B.A., Massachusetts, 1960; M.Ed., Harvard, 1961; Ed.D., Stan ford, 1969.

Dwight W. Allen, *Professor,* B.A., Stanford, 1953; M.A., 1957; Ed.D., 1959.

Alfred S. Alschuler, *Professor,* B.A., Amherst, 1961; M.A., Harvard, 1963; Ph.D., 1967.

G. Ernest Anderson, Jr., *Professor,* B.A. Amherst, 1950; M.A.T., Harvard, 1955; Ed.D., 1966.

Albert S. Anthony, *Professor,* B.A., Trin ty, 1937; M.A.T., Harvard, 1947; Ed.D., 1955.

Kenneth H. Blanchard, *Professor,* B.A., Cornell, 1961; M.A., Colgate, 1963; Ph.D., Cornell, 1966.

Linda Sue Blane, *Assistant Professor,* B.A., Miami, 1963; M.S., 1965; Ed.D., Florida, 1967.

Liane Brandon, *Assistant Professor,* A.B Boston, 1962; M.Ed., 1967.

R. Mason Bunker, *Associate Professor,* B.S., Farmington State, 1959; M.Ed., Maine, 1965; Ed.D., Illinois, 1970.

Emma Cappelluzzo, *Professor,* B.S., Boston, 1955; M.Ed., Arizona, 1959; Ed.D., 1965.

Donald Carew, *Professor,* B.A., Ohio, 1955; M.A., 1956; Ed.D., Florida, 1962.

M. Magdalene Carney, *Lecturer,* B.A., Tennessee, 1953; M.A., George Peabody College, 1967; Ed.D., Massachusetts, 1977

Roberta A. Collard, *Associate Professor,* B.S., Texas, 1940; Ph.D., Chicago, 1962.

Evan Coppersmith, *Assistant Professor,* B.A., Roosevelt University, 1964; M.S., 1974; Ed.D., University of Pittsburgh,1977

Reginald Damerell, *Associate Professor,* B.A., Columbia, 1946.

David E. Day, *Associate Professor,* B.S., State University of New York/Brockport, 1952; M.S., 1958; Ed.D., Wayne State, 1962.

Larry Dye, *Associate Professor,* M.Ed., Massachusetts, 1971; Ed.D., 1972.

J. Philip Eddy, *Associate Professor,* B.A., Nebraska State at Wayne, 1951; M.A., Columbia, 1956.

Carolyn P. Edwards, *Assistant Professor,* B.A., Radcliffe, 1969; Ed.D., Harvard, 1974.

Jeffrey W. Eiseman, *Associate Professor,* B.A., Stanford, 1962; M.A., Michigan, 1964; Ph.D., 1971.

Portia Elliott, *Assistant Professor,* B.A., Fisk, 1969; M.A., Michigan, 1970; Ed.D., Massachusetts, 1973.

Kenneth A. Ertel, *Professor,* B.S., Minnesota, 1953; M.Ed., Eastern Washington College of Education, 1960; Ed.D., Washington State, 1967.

David R. Evans, *Associate Professor,* B.S., Oberlin, 1959; M.S., Illinois, 1961; Ph.D., Stanford, 1969.

Arthur W. Eve, *Professor,* B.Ed., Chicago Teachers College, 1957; M.A., Chicago, 1961; Ph.D., 1967.

William V. Fanslow, *Associate Professor,* A.B., Chapman College, 1959; M.A., Stanford, 1961; Ph.D., 1967.

Gloria M. Figueroa de Guevara, *Assistant Professor,* B.A., Puerto Rico, 1964; M.A.Ed., 1969; Ed.D., Massachusetts, 1977.

Louis Fischer, *Professor,* B.A., Stanford, 1949; LL.B., 1951; M.A., 1954; Ph.D., 1958.

George E. Forman, *Associate Professor,* B.A., Louisiana State, 1963; Ph.D., Alabama, 1967.

Douglas R. Forsythe, *Associate Professor,* B.A., Bucknell, 1960; M.A., 1962; Ph.D., Colorado State, 1968.

Richard E. Frank, *Visiting Assistant Professor,* B.A., North Adams State College, 1967; Ed.D., Massachusetts, 1973.

Roger D. Frant, *Assistant Professor,* B.S., C.W. Post College, 1967; M.A., George Washington University, 1971; Ph.D., University of Wisconsin, 1976.

Ronald H. Fredrickson, *Professor,* B.S., Kansas State Teachers College at Emporia, 1953; M.S., Wisconsin, 1959; Ph.D., 1963.

Atron Gentry, *Professor,* B.A., California State at Los Angeles, 1966; Ed.D., Massachusetts, 1970.

Judith Gourley, *Assistant Professor,* B.A., Northern Illinois, 1965; M.A., Cornell, 1971; Ph.D., 1974.

Michael Greenebaum, *Assistant Professor and Principal, Mark's Meadow School,* B.A., Harvard, 1955; M.A.T., 1956; Ed.D., Massachusetts, 1972.

Donald E. Hall, *Associate Professor,* B.A., Gorham Teachers, 1954; M.Ed., 1955; Ed.D., Boston, 1965.

Ronald K. Hambleton, *Associate Professor,* B.A., University of Waterloo, 1966; M.A., Toronto, 1967; Ph.D., 1969.

Jack Hruska, *Associate Professor,* B.A., Michigan State, 1956; M.A., Colorado State College, 1960; Ph.D., Michigan State, 1969.

Thomas E. Hutchinson, *Associate Professor,* B.A., Rutgers, 1959; M.Ed., Boston, 1961; Ed.D., Harvard, 1969.

Allen E. Ivey, *Professor,* B.A., Stanford, 1955; Ed.D., Harvard, 1959.

Bailey W. Jackson, *Assistant Professor,* M.Ed., Massachusetts, 1972; Ed.D., 1976.

R. D. Jackson, *Assistant Professor,* B.S., Alabama A. & M., 1967; M.Ed., Virginia, 1970; Ed.D., George Washington, 1976.

Byrd L. Jones, *Professor,* B.A., Williams, 1960; Ph.D., Yale, 1966.

Daniel C. Jordan, *Professor,* B.Mus., Wyoming, 1954; B.A., Oxford, 1959; M.A., Chicago, 1960; Ph.D., 1964.

Alfred L. Karlson, *Assistant Professor,* B.A., Antioch, 1964; M.Ed., Tufts, 1966; Ph.D., Chicago, 1971.

David Kinsey, *Associate Professor,* B.A., Oberlin, 1954; M.A., Yale, 1957; Ph.D., Harvard, 1965.

Richard D. Konicek, *Professor,* B.S., Illinois, 1953; M.S., 1954; Ed.D., Columbia, 1967.

William G. Kornegay, *Professor,* B.A., North Carolina, 1949; M.Ed., 1957; Ph.D., 1959.

William Lauroesch, *Associate Professor,* B.A., Colgate, 1942; M.A., Syracuse, 1947; Ed.D., New York, 1956.

Lawrence F. Locke, *Professor of Physical Education and of Education,* B.S., Springfield College, 1952; M.Ed., 1953; Ph.D., Stanford, 1961.

Linda Lockwood, *Associate Professor of Environmental Sciences and of Education,* B.S., Columbia, 1960; M.A., 1961; M.A., 1965; Ph.D., 1969.

Barbara Love, *Assistant Professor,* B.A., Arkansas State A. M. & N. College, 1965; M.A., Arkansas, 1967; Ed.D., Massachusetts, 1972.

William J. Masalski, *Associate Professor,* B.S., Central Connecticut State, 1956; M.A., Fairfield, 1960; Ed.D., Massachusetts, 1970.

Anthony P. Mattaliano, *Visiting Assistant Professor,* B.S., N.Y.U. 1950; M.A., 1951; Ed.D., Massachusetts, 1977.

Lynne Miller, *Assistant Professor,* B.A., Pennsylvania, 1967; M.A.T., Harvard, 1969; Ed.D., Massachusetts, 1975.

Robert Miltz, *Assistant Professor,* B.A., Stanford, 1964; M.A., 1965; Ed.D., 1971.

Ena Nuttall, *Assistant Professor,* C.A., Puerto Rico, 1958; M.A., Radcliffe, 1960; M.Ed., Boston, 1965; Ed.D., 1969.

Ellis G. Olim, *Professor,* B.A., Harvard, 1931; M.A., Roosevelt, 1960; Ph.D., Chicago, 1965.

Gene Orro, *Associate Professor,* B.S., DePaul, 1961: Ph.D., California School of Professional Psychology, 1973.

Howard A. Peelle, *Associate Professor,* B.S., Swarthmore, 1965; Ed.D., Massachusetts, 1971.

Mary Quilling, *Associate Professor,* B.A., Mt. Holyoke, 1958; M.S., Wisconsin, 1965; Ph.D., 1973.

Horace B. Reed, *Professor,* B.A., Antioch, 1943; M.S., Putney Graduate School of Teacher Education, 1953; Ed.D., Harvard, 1959.

Sheryl Riechmann, *Assistant Professor,* B.A., Mankato State, 1970; M.A., Cincinnati, 1972; Ph.D., 1974.

Masha Rudman, *Associate Professor,* B.A., Hunter, 1953; M.S., 1956; Ed.D., Massachusetts, 1970.

David M. Schimmel, *Professor,* B.A., Duke, 1955; J.D., Yale, 1958; B.H.L., Hebrew Union, 1967.

Klaus Schultz, *Associate Professor,* A.B., California at Berkeley, 1957; Ph.D., 1964.

David F. Schuman, *Associate Professor,* B.A., Tulsa, 1964; M.A., California at Berkeley, 1966; Ph.D., 1971.

Harvey B. Scribner, *Professor,* B.A., Farmington State Teachers College, 1946; M.A., Maine, 1951; Ed.D., Boston, 1960.

Earl Seidman, *Professor,* B.A., Oberlin, 1959; M.A.T., Harvard, 1960; Ph.D., Stanford, 1967.

Sidney B. Simon, *Professor,* B.A., Pennsylvania State, 1949; M.Ed., 1952; Ed.D., New York, 1958.

Rudine Sims, *Associate Professor,* B.S., West Chester State College, 1959; M.S., Pennsylvania, 1964; Ed.D., Wayne State, 1972.

Robert Sinclair, *Associate Professor,* B.S., Miami, 1960; M.E., 1961; Ed.D., California at Los Angeles, 1968.

Judithe D. Speidel, *Associate Professor,* B.A., Smith, 1944; M.A., San Jose State College, 1961; M.A., Stanford, 1962; Ph.D., 1969.

Donald Streets, *Assistant Professor,* B.S., Indiana, 1956; M.A., Notre Dame, 1965;Ed.D., Massachusetts, 1971.

Patrick J. Sullivan, *Associate Professor,* B.A., Georgetown, 1960; M.A., California at Berkeley, 1962; Ph.D., 1967.

Bob Suzuki, *Associate Professor,* B.S., California at Berkeley, 1960; M.S., 1962; Ph.D., California Institute of Technology, 1967.

Hariharan Swaminathan, *Associate Professor,* B.S., Dalhousie, 1965; M.S., Toronto, 1966; M.Ed., 1968; Ph.D., 1971.

Salvatore J. Tagliareni, *Assistant Professor,* A.B., Seton Hall, 1958; M.A., Gregorian University, 1964; M.S., Iona College, 1970; Ph.D., U.S. International University, 1973.

Leverne J. Thelen, *Professor,* B.S., Nebraska State at Wayne, 1949; M.A., Nebraska, 1956; Ed.D., 1961.

William L. Thuemmel, *Associate Professor,* B.S., Michigan State, 1958; M.A., 1965; Ph.D., 1970.

Barbara Turner, *Associate Professor,* B.A., Antioch, 1962; M.A., DePauw, 1965; Ph.D., Chicago, 1969.

Richard O. Ulin, *Professor,* B.A., Harvard, 1938; M.A., 1942; M.Ed., 1949; Ed.D., 1958.

George Urch, *Associate Professor,* B.A., Western Michigan, 1953; M.A., 1959; Ph.D., Michigan, 1967.

Peter H. Wagschal, *Associate Professor,* B.A., Harvard, 1966; M.A., Stanford, 1967; Ed.D., Massachusetts, 1969.

Ernest Washington, *Professor,* B.A., Minnesota, 1960; M.A., Illinois, 1965; Ph.D., 1968.

Kenneth Washington, *Associate Professor,* B.A., Michigan State, 1961; M.A., 1967; Ph.D., 1970.

Gerald Weinstein, *Professor,* B.S., Temple, 1954; M.Ed., 1959.

Robert Wellman, *Professor,* B.A., Dartmouth, 1954; M.A., Western Reserve, 1959; Ph.D., Ohio State, 1962.

Donald W. White, *Associate Professor,* B.A., Emerson, 1960; M.A., St. Louis, 1971; Ph.D., Pittsburgh, 1974.

John W. Wideman, *Associate Professor,* B.A., Williams, 1950; M.Ed., Harvard, 1956; Ed.D., 1970.

William C. Wolf, Jr., *Professor,* B.S., Pennsylvania State at Kutztown, 1955; M.Ed., Ohio, 1956; Ph.D., Iowa, 1959.

Robert L. Woodbury, *Professor and Acting Vice Chancellor for Student Affairs,* B.A., Amherst, 1960; M.A., Yale, 1962; Ph.D., 1966.

Raymond Wyman, *Professor,* B.S., Massachusetts, 1937; M.Ed., Boston, 1947; Ed.D., 1956.

Adjunct Graduate Faculty

Donald L. Banks, *Adjunct Associate Professor,* B.A., Bridgewater College, 1961; M.S., Madison College, 1969; Ed.D., Massachusetts, 1974.

Larry Benedict, *Adjunct Assistant Professor,* B.S., Massachusetts, 1967; M.Ed., 1970; Ed.D., 1973.

Stephen M. Blane, *Adjunct Assistant Professor,* B.A., Miami, 1960; M.Ed., 1965; Ed.D., Florida, 1967.

George Bryniawsky, *Adjunct Assistant Professor,* B.Ed., Montreal, 1963; B.A., Loyola, 1967; M.Ed., St. Michale's College, 1966; Ed.D., Massachusetts, 1973.

Barbara Burn, *Adjunct Associate Professor,* B.A., Michigan, 1947; M.A., Fletcher School of Law and Diplomacy, 1948; Ph.D., 1955.

O.C. Bobby Daniels, *Adjunct Assistant Professor,* B.S., Lincoln, 1957; M.S., Chicago, 1965; Ed.D., Massachusetts,1973

Clyde Evans, *Adjunct Associate Professor,* B.S., Detroit, 1966; M.S., Michigan State, 1968; Ph.D., 1971.

Delores B. Gallo, *Adjunct Assistant Professor,* B.A., Hunter College, 1963; M.A. N.Y.U. 1968; Ed.D., Harvard, 1973.

Herbert Gintis, *Adjunct Associate Professor,* B.A., Pennsylvania, 1961; M.S., Harvard, 1962; Ph.D., 1969.

Kathryn L. Girard, *Adjunct Assistant Professor,* B.A., Bennington College, 1969; M.Ed., Massachusetts, 1971; Ed.D., 1974.

Norma B. Gluckstern, *Adjunct Assistant Professor,* B.A., Southern Connecticut State College, 1964; M.Ed., Massachusetts, 1968; Ed.D., 1972.

Simon Keochakian, *Adjunct Assistant Professor,* B.S., Springfield College, 1958; M.S., 1961; Ed.D., Massachusetts, 1972.

Kenneth V. Lorimer, *Adjunct Assistant Professor,* Diploma in Management Studies, City of Leicester Polytechnic, 1971; Diploma in Systems Designs, Twickenham College of Technology, 1972; M.A., Brunel University, Uxbridge, 1974; Ph.D., 1976.

Floyd H. Martin, Jr., *Adjunct Assistant Professor,* B.S., Central Connecticut State, 1969; M.Ed., Hartford, 1970; Ed.D., Massachusetts, 1974.

E. Jefferson Murphy, *Adjunct Professor,* B.A., Emory University, 1948; M.A., 1949; Ph.D., University of Connecticut, 1973.

Frederick R. Preston, *Adjunct Assistant Professor,* B.S., Hartford, 1967; Ed.D., Massachusetts, 1971.

J. Michael Royer, *Adjunct Assistant Professor,* B.A., California, 1967; M.A., Illinois, 1969; Ph.D., 1970.

Harry Schumer, *Adjunct Associate Professor,* B.S., Ohio State, 1954; M.S., 1956; Ph.D., 1961.

Beth Sulzer-Azaroff, *Adjunct Associate Professor,* B.S., New York, 1950; M.A., 1953; Ph.D., Minnesota, 1966.

Robert J. Swartz, *Adjunct Professor,* B.A., Harvard College, 1957; Ph.D., Harvard University, 1963.

Oswald Tippo, *Adjunct Professor,* B.S., Massachusetts, 1932; M.A., Harvard, 1933; Ph.D., 1937.

William Venman, *Adjunct Professor,* B.Mus.Ed., Oberlin, 1955; M.A., Western Michigan, 1959; Ph.D., Michigan, 1962.

Robert C. White, *Adjunct Assistant Professor,* B.S., Maine, 1959; M.Ed., Westfield State, 1964; C.A.G.S., Massachusetts, 1969; Ed.D., 1974.

John M. Williams, *Adjunct Assistant Professor,* B.A., St. Fidelis College, 1963; M.A., Capuchin College, 1965; M.A., George Washington University, 1966; Ed.D., Massachusetts, 1975.

Robert Winston, *Adjunct Assistant Professor,* A.B., Michigan, 1964; Ed.D., Massachusetts, 1972.

Brunetta R. Wolfman, *Adjunct Associate Professor,* B.A., California at Berkeley, 1957; M.A., 1969; Ph.D., 1971.

The School of Education

The School of Education is a comprehensive professional school providing programs of specialized preparation in diverse areas of the field of Education. These programs may lead to the Master of Education degree (M.Ed.), the Doctor of Education degree (Ed.D.), or a Certificate of Advanced Graduate Study (C.A.G.S.). For each degree program, a number of specialty areas or program concentrations are available. Graduate students, under the supervision of their adviser(s), put together individualized combinations of courses and experiences within and across concentration areas. These programs of study are carried out in consonance with certification guidelines, professional association recommendations, sub-program requirements, School requirements and individual goals.

The general academic program in the School of Education is characterized by a diversity of learning and teaching resources, alternative educational paths, and an emphasis on active involvement in the field. The recent organization of the School consisted of the incorporation of individual learning centers into academic divisions, which served as focal points for various academic experiences and courses.

Students typically will belong to the unit with which his/her major adviser is affiliated. However, degrees are not awarded through these sub-divisions, nor are they specific to any specialty areas; rather, they are general education degrees awarded by the Graduate School of the University.

A description of each degree program offered by the School of Education, a statement of the School's commitment to inservice education, and a list of program concentration areas follow:

DOCTOR OF EDUCATION DEGREE PROGRAM

The doctoral program is intended to prepare educators who will be leaders both in the field, and in university teaching and administrative positions. Within the framework of Graduate School regulations and with the advice and approval of a doctoral guidance committee, doctoral candidates plan individualized programs which usually involve at least three years in full-time study beyond the Bachelor's degree. Students are expected to spend at least two consecutive semesters in full-time study under the direct supervision of their committee, participate in conceptual or quantitative research, engage in some form of field experience, become familiar with contemporary problems in Education, and take a comprehensive examination prior to writing the required dissertation. Also, doctoral students must register for 18 dissertation credits during the final stages of their program.

MASTER OF EDUCATION DEGREE PROGRAM

The Master of Education degree program is offered to direct the professional development of certified elementary and secondary school teachers, and to train educational specialists in one of the School's program concentration areas. M.Ed. candidates must complete a 33-credit program which has been approved by a faculty adviser. Eighteen of these credits must carry a letter-grade, 12 must be selected from the 600-800 series, and a minimum of 21 credits must be taken in the field of Education.

CERTIFICATE OF ADVANCED GRADUATE STUDY (C.A.G.S.)

The C.A.G.S. program is offered to provide an intensive cohesive program of professional development for educational specialists beyond the Master's level. Unlike the random course selection which is possible for non-degree students, the C.A.G.S. requires academic advising and the discipline of a focussed, coherent program of study in a program concentration area, without the extended commitment, rigorous requirements, and formal examination of a doctoral program. The C.A.G.S. program is not a University degree program, but a School of Education certificate program. The program requires 30 credits beyond a Master's degree (the Master's degree must not be more than 10 years old). All 30 credits must be granted by the University of Massachusetts, within a four-year period, and at least 15 credits must be granted by the School of Education.

DIVISIONS OF PROGRAM CONCENTRATIONS IN THE SCHOOL OF EDUCATION

DIVISION OF HUMAN SERVICES AND APPLIED BEHAVIORAL SCIENCES

Addresses individual growth and development in educational settings and human service agencies. The general categories of psychology, human relations skills serve as a base for the study of human interaction, group dynamics and organizational factors influencing individual learning.

Areas of Concentration
ANISA
Counseling
Mental Health
Early Childhood Education
Psychological Education
Juvenile Justice
Special Education

DIVISION OF INSTRUCTIONAL LEADERSHIP

Stresses research, development and evaluation of curriculumn programs and teaching methodologies. Emphasizes instructional effectiveness, curriculum innovation, the use of educational technology and alternative approaches to subject matters.

Areas of Concentration
Bilingual-Bicultural Education
Instructional Applications of Computers
Instructional Effectiveness
Integrated Day
Media
Reading
Teacher Education
Urban Education

DIVISION OF EDUCATIONAL POLICY, RESEARCH AND ADMINISTRATION

Provides a theoretical perspective for educational systems and their effective application to policy and decision-making. Educational law, history, philosophy, research methodologies and administrative theory and practice are systematically related to policy issues and administration.

Areas of Concentration
Administration
Foundations
Future Studies
Higher Education
International Education
Occupational Education
Research

INSERVICE EDUCATION

The School of Education conducts inservice education programs with teachers, specialists, and administrators throughout the Commonwealth, both within schools as well as within other educational settings. Over 20 inservice programs offer a wide variety of concentrations for practicing educators and other human service efforts of the School of Education strive to foster high quality cooperative education. Off-campus programs include satelite centers in such cities as Boston, Wellesley, Falmouth, and Worcester. In response to the unique needs of professional educators, the School of Education provided both degree and non-degree inservice courses of study. All inservice programs work to meet community educational needs, to facilitate staff development, and to improve the quality of public school education.

INSERVICE PROGRAMS

DIVISION OF HUMAN SERVICES AND APPLIED BEHAVIORAL SCIENCES

ANISA Teacher Education Program
Career Development Program
Part-time Master's Program in Counseling
Prescriptive Counselor Specialists
CAGS Program in Counseling
Inservice Diagnostic Prescriptive Teacher Program
Early Childhood Education/Special Education
Early Childhood Education Inservice Master's Program
Optional Learning Environments

DIVISION OF INSTRUCTIONAL LEADERSHIP

Bilingual-Bicultural Education Teacher Preparation Program
Boston English High School Program
Center for Urban Education-Experienced Learner Program
Education for Community Service
English Education for a Pluralistic Society
Integrated Day Inservice Growth Program
Media Specialists Inservice Master's Certification Program
Museum Education
Reading Inservice Degree Program
Study of Unified Science Education

DIVISION OF EDUCATIONAL POLICY, RESEARCH AND ADMINISTRATION

Cooperative Education Inservice Graduate Program
Education for a Changing World
Institute Fellows Program
Title IV Inservice Training Program

Ordinarily, applications are accepted only for Fall semester admission. Additional information about the School of Education's graduate degree programs may be obtained by writing to the Office of Graduate Affairs, School of Education, University of Massachusetts, Amherst, MA 01003.

School of Education Curriculum

The following courses form the foundation of the School of Education's curriculum program. Although these courses cover basically the specified subject areas each semester, they are modified from semester to semester to reflect the needs of the ever-changing student population and the demands of professional education. To provide further opportunities for individualized programs, the School also makes heavy use of experimental courses, topical seminars on contemporary issues, field experiences, and individualized study contracts.

All courses carry 3 credits unless otherwise specified.

General Education

Educ 599 Student Teaching
A 16-week field experience under the tutelage of a cooperating teacher and University supervisor in an approved school system.
Credit, 3-12

Educ 615 Workshop In Education
Group study of practical problems i curriculum, instruction, and administra tion for school personnel in service.
Credit, 2-6.

Educ 899 Doctoral Dissertation
Credit, 1-9.

Human Services/Applied Behavioral Sciences

H515 Theory and Practice in Interviewing
The dynamics of interviewing, theoreti cal bases for conducting interviews, type of interviews, research in intervie behavior, data gathering procedures, op portunity for practice and field work.

H520 Human Relations Laboratory
For prospective elementary teachers witl several basic skills in human relations Teacher trainees participate in exercise in attention, flexibility, and decision making in human relations.

H522 The Education of the Self
Educational strategies for increasing self knowledge. A laboratory approach ir those processes, concepts, and skill leading toward self-observation, patterr clarification, and the development o personal designs for response-experimen tation are pursued. Journals and fina papers document experiences. Prerequi site, permission of instructor.

H525 Inter-Racial Perception and Ideology
An historical and diagnostic exploration of major forms of oppression in the American social order with emphasis on preventive and remedial approaches to improving human relations.

H545 Methods of Stimulating the Exploration of Values
Various ways of utilizing group dynamics methodology to stimulate value exploration of psychological issues and social issues confronting contemporary youth, such as drugs, race, and sex.

H570 Principles of School Guidance
The nature of guidance and its need in the schools with an overview of an adequate guidance service for a school system.

H573, 574 Laboratory Course on Using Human Development Knowledge in Education
A year-long laboratory course paralleling

both field-teaching experiences for students concentrating on early childhood education. Factors such as sex, environment, social status, and culture examined in terms of their relation to growth rates and patterns. Data taken from the community in which teaching experience takes place.

I575 Seminar in Curriculum Development For Early Childhood Education
Curriculum components for children in early childhood programs designed to follow each field-teaching experience. Limited to students specializing in early childhood education.

I576 Early Childhood Education Movement
Contemporary purposes, programs, and problems of early childhood education, from an historical and philosophical perspective. A one-semester graduate seminar. Meets state requirements for Teacher Certification.

I577 Observation Techniques in Early Childhood Education
Observation of early childhood educational programs of various kinds serving disadvantaged as well as middle-class children. Four laboratory hours per week during the first four weeks of the first semester.
Credit 1.

I580 Curiculum Models in Early Childhood Education
Purposes, structure, and methods of current ECE models. Beliefs regarding the nature of child development and learning, and the importance of education assumed by each model.

I605 School Counseling Theory
Counseling theory and research evaluation. Methodology, philosophies, ethics, problems, and issues of school counseling. Prerequisites, H 377 and at least one hour of credit in H 701.

I606 School Counseling Procedures
Instruments and techniques of guidance, such as observation, individual appraisal, and record-keeping, and school-community liaison practices. Prerequisites, H377 and H 605.

I607 Occupations and Placement in School Guidance
The collection and evaluation of occupational, educational, and placement information, and its use with individuals and groups of students in school guidance. Prerequisite, H 377.

H609 Group Activities in Counseling
A guidance study of school groups. Group dynamics, discussion techniques, group counseling, sociometric methods, and other school group activities. Prerequisites, H 377, H 605, and H 606.

H631 Laboratory for Counseling Skills
The general nature of theory construction, levels of explanation, relationships of philosophy, psychology and sociology, various methods of facilitating human growth and development.

H653 Helping Adolescents Cope With Their Problems
How to help adolescents understand forces acting on them, clarify goals and values, design and implement problem solutions, and engage in long term growth and development.

H664 Research Projects in the Social and Behavioral Sciences
Guided individual projects to increase student's research competencies. Topics include sampling, research design interview and questionnaire construction, statistical techniques, and writing and interpretation of research findings.

H675 Advanced Seminar in Language Development in Early Childhood Education
The relationship between language and thought. Emphasis on contemporary language development programs in early childhood education. Includes an analysis of linguistics.

H678 Practicum in Humanistic Curriculum Development
Models for the development of humanistic curricula. Students employ one or more models in writing their own curricula, and in evaluating their efforts. Prerequisite, H 522.

H679 Value Clarifications for Teachers
To help teachers clarify their own values; how these values affect their students in and out of the classroom.
Credit, 1-3.

H701 Practicum for School Guidance
Field experience under supervision. For students in final part of master's program. Prerequisites, H377, H605, and H606.
Credit, 3-9.

H703 Administration of School Guidance Services
Operative framework of guidance programs in terms of personnel, functions, physical facilities, institutional integration, finance, and data processing. To be taken near completion of Master's degree. Prerequisite, H377.

H705 Human Appraisal and Evaluation
Analysis of statistical procedures; review of achievement, aptitude, and interest tests, and their interpretation, selection, and administration; case-study procedures; ethical consideration; and problems in human assessment. Prerequisite, permission of instructor.

H707 Seminar in Guidance (Master's Section)
Professional problems reviewed; ethical issues regarding confidentiality; program development to combat racism and sexism.

H729 Adjustment Counseling Casework
Supervised experience with children having special adjustment problems. May not be taken in addition to H830.

H730 Measurement for Guidance
Analysis of measurement devices in school guidance, including sociometrics, value scales, inventories, and other tests.

H732 Career Development
Intensive study of theories of vocational choice, related literature and research. Analysis of world of work and impact of such factors as technology, demography, social structure, geography, automation, age, and sex on career and personal development; implications for educational institutions.

H741 Issues in Counseling Practice
Credit, 3-6

H742 Problem Solving Methods for Educational Consultants
Analysis of concepts, strategies, and group behavior practices that positively or negatively affect the outcome of efforts to solve complex educational problems.
Credit, 4.

H747 Family Counseling
Basic approaches to family counseling including communications, psychoanalytical and behavioral theories.

H753 Strategies to Improve Human Service Delivery Systems
Mental operations, strategies, and prototypes useful in recognizing, conceptualizing, and coping with problems and conflicts related to designing and improving human service delivery systems.

H754 Advanced Practicum in School Counseling
Supervised practical experience for advanced students in the area of School Counseling. Stress on process in counseling; opportunity to explore many theories and techniques.
Credit, 3-9.

H762 (I) Prescriptive Counseling Seminar

H763 (II)
Analysis of advanced measurement techniques, behavioral observational strategies, and development of prescriptive plans for youth in schools. Study of designs and research methods in counseling.
Credit, 3-6.

H775 Psychological Foundations of Humanistic Education
Explores psychological foundations of humanistic applications to education and counseling and the relationship of humanistic psychology to human potential, behaviorism, and psychoanalysis.

H785 Gestalt Therapy: Educational Applications
Basic concepts of Gestalt Therapy. Lectures, demonstrations. Students work under supervision toward development of their own theory, practice in counseling, group leadership, and teaching.

H807 Seminar in Guidance (Doctoral Section)
Analysis of evaluation designs and methods for measuring effectiveness of guidance services.

H826 Clinical Studies in School Guidance
Intensive case studies of youth. Prerequisite, H 606 or H730.

H828 The Teaching of Counseling
A case method seminar for advanced doctoral students (beyond practicum) in Guidance and Counseling to prepare them for staff training responsibilities.

H830 Internship in Counseling
Supervised on-the-job counseling experience. Work includes direct counseling, individual supervisory conferences, writing of case reports and the analysis of taped counseling sessions. For CAGS and doctoral students.
Credit, 9-12.

H835 Special Seminar in Humanistic Education
A reading seminar exploring the philosophy, social-psychology and purposes of humanistic education. For doctoral students who have taken H522 and the Practicum in Humanistic Curriculum Development.

H886 Group Counseling

Instructional Leadership

I505 Aesthetic Elements in the Teaching-Learning Process
How to increase creativity and use the arts in the classroom. Improvisation workshops, discussions, readings and curriculum projects.

I509 Principles and Methods in Teaching Secondary English
An analysis of purposes, problems, issues, methods, and materials in the teaching of English at the secondary level. Discussion, lectures, case studies, projects. Does not satisfy core requirements. Prerequisite for student teaching in English.

I511 Curriculum Developments in Music and Sound in Education
A survey of methods, techniques, and problems related to the innovative use of music and sound in the classroom as a n aesthetic medium for enhancing learning of all kinds. Development of experimental innovations and their applications.

I512 Curriculum Innovations in Movement and Dance in Education
A survey of methods, materials, techniques, problems, and relevant research literature related to the use of dance in the classroom as an aesthetic medium for enhancing learning of all kinds. Experimental application of innovations developed in the course.

I517 Introduction to Computer Use in Teaching
Introduction to uses of the computer in the teaching/learning process.

I535 Educational Media, Technology and Systems
The characteristics, capabilities, applications and implications of a variety of media to a variety of educational strategies.

I536 Audiovisual Information Transmission
Available knowledge and technolog useful in the design of audiovisua materials. A search for principles usefu in planning materials to aid cognitiv and effectiveness experiences in educa tional contexts.

I537 Media Production Survey
Preparation of slides, graphics, recor dings, and still and motion pictures fo use in an educational program. Fo teachers, trainees, and specialists.

I538 Tape Recording Techniques and Educational Audio Production
The creative and practical application of sound and tape recording technique in many educational and communit situations. Basic taping, editing an mixing skills. Educational and commer cial programming.

I539 Using and Understanding Film in Education
Explores and encourages the use o creative and stimulating films in educa tional settings; techniques used by film makers; methods for structuring film discussions.

I540 Educational Broadcasting
A history of educational broadcasting The current status, development, an availability of radio and television pro gramming for educational purposes Evaluation of radio and television in ac cordance with instructional objectives.

I541 Educational Film Production
Theoretical data and project applica tions: students produce educationa messages in a motion picture forma through the use of portable videotape.

I545 Filmmaking for the Classroom Teacher
Creative and practical use of filmmaking in a wide variety of educational settings, its relevance to particular subject matter areas, and its interdisciplinary applications.

I546 Educational TV Workshop
For teachers and teacher interns. The hardware of television; experimental use of television in solving educational problems.

I547 Preparation and Use of Audio-Visual Materials
Machines, materials, and techniques for teaching groups of students.

557 Teaching the Handicapped Through Media
Professional preparation in educational media and technology. Partially fulfills requirements for the educational media and technology program.

561 Science Education in the Elementary Schools
For teachers or other interested persons who wish to bring their knowledge of methods, materials, and curriculum up to date. Laboratory approach.

568 Curriculum Development in Urban Education
Development of innovative curricula for urban schools; the kinds of curriculum development relevant to inner city environments. A post-urban internship: lectures, seminars, and field experience.

571 Urban Community Relations
The interrelationship of inner-city communities and established power within the school system, community control, participation, and decision-making in education and development of alternatives in power relationships. Lecture, discussion and field experience.

572 Teaching Reading to Special Populations K-12
Approaches to the teaching of reading to such special populations as the disadvantaged, the gifted, and the emotionally disturbed, with stress on the individualized and experience approaches. One group studied intensively.

575 Diagnosis of Reading Disabilities
Identification, diagnosis, and case studies of reading disabilities. Each student participates in an individual diagnosis, writes a case study, and holds parent, school and other interviews. Evaluation techniques and current theories of diagnostic procedures.

611 Recent Developments in Secondary Science
The scope and sequence of the science curriculum; the rationale, content, and implications for different student populations of selected curricula. Prerequisite: teaching experience.

613 New Developments in Secondary School Social Studies
A comparative study and evaluation of recent programs and practices in secondary school social studies.

I620 Graduate Seminar in the Methods of Teaching English
Methods course for graduate students preparing to teach high school or junior college English. Critical issues and new areas of emphasis in the curriculum.

I621 Workshop in Language Arts
Students design presentations in the language arts for pre-service student preparing for the open classroom. Lectures workshops and individual conferences.

I622 The Nature of Creativity
Cultural and personal factors conducive to creativity. Projects develop ways that teachers can facilitate creative behavior in high school students.

I627 Photography in Education
Theory and practice of taking and processing photographs for use in educational activities.

I628 Audiovisual Technology
Applications of acoustics, electricity, magnetism, mechanics, and optics to audio-visual equipment and techniques. Prerequisite I547.

I632 Introduction to Piaget for Elementary Educators
Piaget's theory of intellectual development; application of this theory to teaching and to education in general. Prior teaching experience helpful.

I638 Pre-Production Creativity of Educational Films
How to visualize ideas, concepts and curricula, utilizing all video and cinematographic techniques of live action, animation, cuts, dissolves, freeze frames, slow motion, etc. to communicate them interestingly and effectively.

I639 Visual Communications and Literacy
The elements of visual literacy and of programs of visual education.

I650 Auto-Instructional Devices and Programmed Learning
Theory and practice of programmed learning for typical school subjects. Each student sets up objectives and constructs a program for a unit of work. Implications for future use in education. Prerequisite, I547.

I657 Introduction to Urban Education
Discussion groups survey urban and suburban schools, the process of learning in urban classrooms, the effects of the present curriculum, and various innovative techniques applicable to urban schools.

I662 Creativity in Curriculum Design
The educational implications of recent cerebral hemispheric specialization data for curriculum and pedagogical theory. Personal creativity, its place in curriculum and its relationship to cognition. Prerequisites, experience with children and with curriculum theory and design.

I668 Developments in Elementary Science Education
A survey of recent research in elementary science education and the resultant implications for practice in the school. Prerequisite, I462 or I561.

I681 Teaching or Reading on the Secondary and Adult Levels
Principles, methods and materials for the teaching of developmental, remedial, and accelerated reading programs. For teachers of students at the junior and senior high school levels, and for leaders of adult and college reading programs.

I682 Children's Literature
Lectures, demonstrations, discussions, practicum and readings surveying the field. Content areas such as comparative folklore, poetry, and non-fiction, approaches for classroom use, contemporary problems, and the needs of specific populations.

I684 Psycholinguistics and Reading
Contributions of psycholinguistic theory to an understanding of the reading process. Presents a model of the reading process and explores implications of psycholinguistic knowledge for reading instruction.

I706 Workshop in Science Education
Selected problems in curriculum and instruction in science.
Credit, 3-6.

I709 Seminar in Reading
Content varies each semester. Topics may include psycholinguistics and reading, miscue analysis, current issues, role of the reading consultant.

I710 Seminar in Mathematics Education
A survey of recent developments in elementary mathematics education and their implications for exploring mathematics in the elementary school.

I711 Recent Developments in Secondary Mathematics
A critical evaluation of the current literature, research, and studies in the curriculum and teaching of secondary school mathematics. Prerequisites, I411 and teaching experience.

I712 Recent Developments in Secondary English
A critical evaluation of the current literature, research, yearbooks, and experiments in the curriculum and teaching of English. Prerequisites; I509 and teaching experience.

I713 Planning for Urban Schools
Through economic analysis of schooling, students focus on developmental strategies for urban administrators, program specialists, and community organizers.

I714 Seminar in English Education

I715 Secondary School Curriculum
The factors influencing the secondary school curriculum, the organization of the curriculum, and the goals of the secondary school, and current developments and elements desirable in the curriculum of typical secondary schools. Prerequisite: teaching experience or permission of instructor.

I716 Workshop in Remedial Reading

I737 Educational Media Theory
The research and theoretical aspects of media in education systems; special reference to philosophies, learning systems and communication models which relate to the teaching-learning situation.

I738 Advanced Media Production
Professional preparation in the area of education media and technology.

I740 Micro-Teaching: Development and Implementation
Indepth analysis of microteaching concept. Focus on working with teachers and school personnel (pre-service and in-service) to improve instruction. Utilizes simulation and videotape feedback to analyze instructional techniques.

I743 Administration of Audiovisual Services
For audiovisual coordinators, directors, and supervisors. Operation of an audiovisual service: teacher-training, selection of materials and equipment, storage, cataloging, distribution, maintenance, and financial support. Prerequisites, I547 and teaching experience.

I744 Newer Media in Education
For administrators, supervisors, and experienced classroom teachers. The characteristics, applications, and implications of the newer media in education such as language laboratories, motion pictures, closed circuit television, and teaching machines. Prerequisite, I547 or permission of instructor.

I745 Curriculum Integration
Theory and current practice of the integration of subjects in the curriculum of elementary schools and teacher training programs. Includes the designing of integrated curriculum for teacher education. Permission of instructor required.

I746 Teacher Education and Racism in Schools
The development and institutionalization of racism as phenomena affecting schools; development of learning experiences to aid teachers in understanding issues of racism, and skills in combatting racism in education.

I755 Curriculum, Methods and Programs in Urban Education
A survey of curriculum techniques, methods, materials and programs related to teaching urban children. Students develop innovative methods and curricula for urban schools.

I757 Research, Planning and Development in Urban Education
Urban development and power structures in relation to urban schools. Includes a survey of relevant literature, seminars and research or planning projects.
Credit, 3-6.

I770 Instructional Applications of Computers
Each student proposes, designs, develops, implements, informally tests and documents an experimental unit of computer-assisted instructional material.

I773 Developing Curriculum for Teachers in the Integrated Day
Assumptions and pedagogical characteristics derived from open education literature and research. Devising and implementation of learning experiences for pre-service and in-service teachers.
Credit, 1-6.

I774 Issues and Problems in Teacher Education for Urban Schools
Research on problems relating to teacher effectiveness; and pre-service and in-service teacher education designs.

I776 Theory of Communication for Bilingual Education
Linguistic, psychological and sociocultural aspects of communication; analysis and exploration of fundamental aspects of theory of communicative competence; emphasis on implications for bilingual schooling.

I780 Research in Reading
Relevant research and development activities in reading, past, present, and future, including an analysis of the research-to-implementation process and an investigation into possible breakthrough in reading instruction. Prerequisite, permission of instructor.

I783 Diagnosis of Reading Difficulties
The diagnosis and treatment of reading difficulties. Theory and interpretation of diagnostic procedures. Prerequisite: I461.

I784 Issues in Children's Literature
Advanced seminar. Participants investigate references and children's books dealing with such issues as death, old age, sexism, racism, divorce, war, and other issues of social significance.

I838 Seminar in Science Education
The current literature and research in science education of researchable problems and research strategies which may be applicable.

I851 Principles of Supervision
Principles and problems of supervision and the exercise of educational leadership to improve instruction in the elementary curriculum and in secondary school content fields.

I858 Urban Administration and School Structures
New departures in school organization and administration in urban schools. Explores decentralized school systems, MIAs, the house plan and educational parks, the development of differentiated staffs, flexible scheduling, etc.

I859 Change Strategies for Urban Schools
Change processes and various administrative approaches, innovations, curricular development, evaluative techniques, staffing patterns, and training models focused on improving inner city schools.

I860 Administration in Urban Elementary Schools
The instructional leadership role of the urban elementary school principal. Analysis of the process of organizational change and its implications for urban principals.

I871 Design and Evaluation of Teacher Education Programs
Theories for program designs, rationales, evaluation, selection procedures, advising, staffing. Alternative pre-service and in-service programs provide case material.

I872 Supervision as a Helping Relationship
Seminar for graduate students with supervisory responsibilities. Participants review research in psychological foundations of helping professions to translate theory into field practice.

I873 Seminar for Resource Personnel
Development of leadership skills for advanced graduates in the Integrated Day approach who act as advisors and resource people in the field. One year.
Credit, 3-6.

Educational Policy, Research and Administration

P506 Overview of Evaluation
Seminar utilizing the writings of Guba, Stufflebeam, Stake, Pace, Serevin, Bloom, and Hammond. Emphasis on philosophies of evaluation, variables employed in the various models, and the generation of new evaluation designs.

P507 Learning Systems Development
For educational specialists, administrators, and classroom teachers. Procedures for developing instruction that meets student needs, including techniques of accountability, individualizing instruction, using instructional objectives, and evaluation techniques.

P508 Research Methods in Education
An interdisciplinary course on research methods and scholarship in psychological, sociological, economic, political, historical, and philosophical studies of education. Prerequisites, study in a discipline and permission of instructor.

P516 American Secondary Education
Learning materials and activities and their organization in various teaching fields. Prerequisites: an elective in Foundations of Education.
Credit, 2.

P519 Education and Public Policy
Selected issues and problems concerning the interaction between education and politics at the local, state, and national levels.

P526 Curriculum Development in International Education
The resources and concepts of curriculum development in international education. Students develop units that can be taught in elementary or secondary schools.

P527 Introduction to the Uses of Computers in Education
Many areas of application of computer-related technology to schools, including instruction, research, administration, the systems approach and general societal impact of the computer.

P528 Laboratory in Cross-Cultural Studies
Development of sensitivity to cultural differences by examining the elements of cross-cultural communications in an educational context. Primarily for teachers and others in education. Experientially based (employing field work, role-playing, and gaming), and balanced by analytical readings, discussions, and independent study. Fulfills "foundations" requirements for students seeking Teacher Certification.

P529 International Education
An introduction to certain portions of international education. The issues surrounding education as a tool of development, education in a cross-cultural context, and education through international exchange of persons and ideas. Substantial foreign-student participation. Readings, class discussions, learning games, and individual study projects. Fulfills "foundations" requirements for students seeking Teacher Certification.

P530 Economics of Education
An introduction to economists' approaches to education as an investment in human capital. Review of the literature and discussion of issues raised.

P531 Issues in Freedom and Restraint in Academic Policy
The sociological, philosophical, economic and anthropological considerations found in freedom and restraint conflict, via readings in periodicals and discussions.

P532 Principles of Educational and Psychological Testing
Basic principles of measurement. Topics include descriptive statistics, reliability, validity, principles of test-construction, item analysis and a review of standardized tests.

P534 Educational Tests and Measurements
The most serviceable tests for measuring achievement. Test construction, administration, scoring, and interpretation of results studied and applied to the classroom.

P542 Contemporary Educational Philosophies
Critical examination of selected contemporary philosophies of education. Special attention to social implications and to relevance to educational practice. Fulfills the "Foundations" requirement for students seeking Teacher Certification.

P543 Universities: Development, Roles, Problems and Issues
Origins of universities in the medieval period, their development on the continent, in England, and the U.S.; selected topics such as academic freedom and tenure, governance, origin and development of state universities, graduate school, proposals for reform, etc.

P549 Alternative Structures in Higher Education
Review and analysis of organizational structures of institutions of higher education; design of alternative models for governance and learning.
Credit, 4.

P550 Conceptions of Liberal Education
Traditional and modern conceptions of liberal education analyzed with regard to their relevance to contemporary societies and education.

P551 Foundations of Education
Selected problems and issues in modern education studied through the discipline of educational sociology, educational history, educational philosophy, comparative education, or social psychology. Independent study or field experience optional. Possible foci are educational aims, societal expectation of the schools, church-state relations, professionalism, academic freedom, curriculum and methodological emphasis, urban education, and educational innovation. Fulfills "Foundations" requirement for students seeking Teacher Certification.

P552 Educating the Disadvantaged Child
The issues and problems in educating disadvantaged children. Emphasis on urban elementary education; rural education problems also addressed.

P554 Educational Anthropology
Relevant concept from cultural anthropology (such as change, human behavior and interaction, and cultural

determinants within American culture) applied to education. The culture of the schools and the role of this subculture in the culture as a whole.

P555 Introduction to Statistics and Computer Analysis I
Elementary descriptive statistics, control of the computer terminal inferential statistics, and some programming concepts with a computer language (FORTRAN) for unique solutions of problems.

P558 Educational Statistics Laboratory
Use of a major computer statistical package in both the batch (punched card) and time sharing modes on the computer. Actual data analyzed and results interpreted.
Credit, 1.

P562 Education in Africa
Major trends in education on the developing African continent. Emphasis on the changes since independence. The impact of cross-cultural forces at work in education.

P563 Education in Asia
The relationship between education and society in the major nations of the Far East. The process of Change in educational thought and institutions; the conflict between tradition and contemporary forces.

P564 Educational Patterns Around the World
The processes and problems of educational development in selected areas throughout the world and the interrelationship between education and culture. Emphasis on cultural forces of education.

P565 Education in Latin America
The developmental history of the educational structures and systems of Latin America. Emphasis on the effectiveness of the various educational models. Analysis based on related case studies.

P566 Education and Development
The relationship between the development of national and regional areas and education. Systems analysis introduced; areas for potential research projects identified.

P569 Practicum in International Education
Supervised practical experience in various areas of international education.
Credit, 1-6.

P584 Organization and Administration of a Distributive Education Program
Activities necessary to initiate, maintain, and improve a Distributive Education Program. Focus on organization and administration at the secondary level.

P586 Organization and Administration of a Cooperative Education Program
Organization and administration of the Cooperative Education Program at the secondary level. Those activities necessary to initiate, maintain and improve a Cooperative Education.

P587 The Individual and the Organization of Higher Education
Analysis of the effects of institutional and organizational structure and values on individual development.

P603 Introduction to Research for Non-Research Majors
Purposes of research; different kinds of research (i.e., historical, survey, and experimental models): specific research methodology (drawn from statistics, experimental design, and measurement and evaluation).

P624 Design and Management of School Information Systems
Systems analysis, problem definition, hardware selection, site preparation, systems design, staff selection, information collection and display, programming and procedure documentation standards, and user-training for various types of information systems. Concurrent internship in an appropriate school information center expected. Prerequisite, knowledge of computer programming.

P626 Teaching the Asian American Experience
Introduction to the Asian experience in the United States for prospective teachers in the area of multicultural/cross-cultural education.

P633 Educational Law
An introduction to the legal aspects of public education including rights and liabilities of school boards, teachers, and pupils; special attention to recent legal interpretations.

P634 Educational Knowledge Diffusion and Utilization
Two aspects of change—the diffusion of knowledge and its utilization in practice—systematically studied during the first semester. Opportunities provided for independent study and field internships, if additional formal education is desired, during the second semester.

P642 Administration of Adult Education
Role of the public schools in continuing community service and planning and directing programs in adult education adult needs in preparation for job procurement, retraining, job advancement and community service. Prerequisite P726.

P645 Inquiry into American Schooling
Contemporary educational practices Emphasis on promising developments in curriculum, staffing, and organization of public schools, past and future innovations.

P652 Criterion Referenced Measurement in Curriculum Development and Evaluation
Criterion referenced measurement considered theoretically, including validity reliability, item and objective construction, and practically, including classroom instructional management, test administration, and use with instructional activities.

P654 Introduction to Future Studies
Basic concepts in future studies, theory and techniques of long-range forecasting; views of noted futurists; educational policy making; designing future-oriented curricula; classroom applications of futuristics, and the development of educational change strategies.

P656 Introduction to Statistics and Computer Analysis II
Elementary descriptive statistics, control of computer terminal inferential statistics and some programming concepts for unique solutions of problems. Prerequisite, P555 or permission of instructor.

P658 Introduction to School

P659 Administration I and II
Introduces each of the many disciplines on which an administrator calls. Faculty of the University and the Five Colleges lecture on their own disciplines.

P665 Organization for Curriculum Development: Basic Principles in Curriculum and Instruction
The procedures and criteria for curriculum development. Determining goals, creating and organizing learning opportunities, and evaluating the effectiveness of curricula, considered in small group setting.

666 Principles and Methods of Teaching Distributive Education
The teaching of non-technical skills common in distributive type occupations, especially self-assessment, inter-personal and conceptual skills. All traditional teaching methodologies used in distributive education courses.

672 Development and Validation of Assessment Measures in Education
The steps involved in research and evaluation studies; and the development and validation of attitudes scales; questionnaires; achievement, aptitude, and personality tests; interview schedules and observational systems.

677 Introduction to Multicultural Education
Introduction to multicultural education including historical and cultural dimensions of racial and cultural minorities, biases in schooling, philosophies of cultural pluralism and implementation strategies.

684 Curriculum Development in Future Studies
A workshop in the development, evaluation and revision of curriculum in Future Studies, for use at either the secondary or elementary teaching levels. Students design and field test curriculum materials as part of course work.

688 Long-Range Educational Forecasting
The problems and methods involved in long-range educational planning. Includes analysis of theories of education; pending social/technological changes (global and national) as they impinge on future educational possibilities and the likely future of political/economic forces that affect educational institutions.

717 English for the Disadvantaged
Special problems involved in teaching English in secondary schools in which students come largely from culturally and economically disadvantaged backgrounds.

719 Basic Skills in Nonformal Education for Development
Nonconventional approaches to development of human resources in Third World. Includes conceptual issues in nonformal education, program training, materials development, management.

720 Education and Nation Building
The educational problems facing developing nations as they endeavor to use the schools as an ameliorative agent. Economic factors and political considerations influencing educational planning in divergent cultures; the allocation of educational resources and the confrontation between old and new cultural values.

P721 Research Methodology in International Education
An introduction to research methods; students enabled to design and carry out field studies in international education. Techniques used in the various social sciences and examples of their application to problems in international education. Survey methods, attitude and value analysis, interviewing and participant-observation techniques and research design. Models of design and techniques presented for critique. Each student sets up a research design and method outline for a specific project.

P722 Workshop in Educational Administration (Principals)

P723 Workshop in Educational Administration (Administrators)

P724 Seminar in International Education (For Doctoral Majors)
An integrating core experience for doctoral students in international education. Current issues and areas of competency needed in the field.

P725 Externship in Business and Industry
Supervised field experience in industry, business, research organizations, or public agencies relevant to the student's area of specialization. Planned individually by student, cooperating business and vocational-technical education staff prior to enrollment.
Credit, 1-6.

P726 Fundamentals of Educational Administration
Introduction to general school administration, the relation of public education to the cultural pattern, and organization and practices in school administration.

P727 Administering Elementary Schools
The principal's responsibilities, organization of the school office, scheduling, use of school facilities, curriculum organization, staff relationships, and the place of the school in the community. Prerequisite, teaching experience.

P728 Administering Secondary Schools
Housing, finance, scheduling, the library, guidance, cafeteria, public relations, etc. Prerequisite, teaching experience.

P729 Public School Finance
The economics of public education, sources of school revenue, taxation, and federal, state and local plans of school fiscal support. Prerequisite, P726.

P731 Introduction to Factor Analysis
An introductory treatment of the linear factor model consideration of the basic problems of factor analysis and a discussion of various factor-analytic solutions. Problems of design and interpretation. Prerequisite, permission of instructor.

P735 Advanced Theory and Practice of Testing I
The theory of mental tests beginning with the classical test theory model and including such topics as reliability, validity, item analysis and latent structure models. Prerequisite, permission of instructor.

P736 Advanced Theory and Practice of Testing II
Advanced topics in test theory. Includes problems in the measurement of change, latest trait theory, item-examinee sampling theory and tailored testing strategies. Prerequisite, P735.

P746 Seminar in Curriculum Development in Vocational Technical Education
Curriculum development approached from the standpoint of problem areas and embodying current research and response to social or technical changes.

P748 The Two-Year Collegiate Institution in American Education
The evolution of variant forms of two-year degree-granting institutions with attention to related philosophical and social issues.
Credit, 2.

P749 Current Concepts, Trends, and Practices in Vocational-Technical Education
Concepts resulting from a critical evaluation of the research and legislation involved in the development of vocational and technical education programs.

P750 The University: An Organizational Analysis
The effects of institutional organization in higher education on human behavior.

P751 Individual Alienation and Contemporary Higher Education
An analysis based on interdisciplinary readings on student alienation in contemporary institutions of higher education.

P756 Graduate Seminar in Future Studies
Primarily, though not exclusively, for doctoral students in the Future Studies Program. Advanced exploration of the substance and techniques of future studies as they relate to educational institutions: educational policy making, curriculum construction, and reaching techniques.

P758 School Personnel Administration
The leadership role in staff performance and duties, the planning and promotion of continuous programs of in-service training, and personnel recruitment and development. Prerequisite, P726.

P759 School Business Administration
The business aspects of school administration as related to the attainment of educational objectives. The nature of the problems involved and the skills needed in directing school business affairs. Prerequisite, P726.

P760 School Plant Planning
School plant needs, site selection, bonding, building planning and standards, architectural service, and furniture and equipment selection practices. Prerequisite, P726.

P767 Introduction to Educational Planning
Planning at various stages of education (local, state, national); techniques and tools; the politics of long range planning and development of management systems.

P771 Application of Multivariate

P772 Statistics to Problems in Education I and II
Topics include matrix algebra, linear models, profile analysis, analysis of multivariate experimental designs, discriminant, canonical, and components analysis. Prerequistes: P555/P656 or permission of instructor.
Credit, 3-6.

P778 Introduction to Higher Education Management Systems
The terms, concepts, premise, and operational problems of new management technologies applied to higher education.

P786 Clinic for Solutions to Educational Problems
Problems as presented by persons actively involved in education.

P805 Needs Analysis Methodology
Provision of needs data for decision-making.

P806 Seminar in Evaluation Methodology
Developmental theory of new evaluation methodologies for general or special cases considered. Specific methodologies analyzed. Practical experience in developing, field testing, and applying methodologies.

P816 Technology and Educational Development
Modern technology and educational innovations and their adaptations to problems of developing countries. Students design a project for implementing given innovations in the context of a particular country.

P817 Techniques of Educational Planning for Developing Countries
For advanced doctoral majors in educational development. Basic techniques of educational planning as currently used in Europe and developing countries. Students carry out a planning exercise for a given school system.

P818 Education in Rural Development
Role of education in rural development of Third World countries. Includes formal and nonformal education, rural organizations, and development of agriculture related skills. Rural development experience helpful.

P819 Seminar in Research Advanced Methodology for International Education
An advanced seminar in research methods for doctoral candidates about to begin field work. Discussion and analysis of dissertation proposals. Normally taken by second-and third-year doctoral students in international education.

P820 Research Practicum in Education
Educational problems examined in varied field settings. Alternative solutions contemplated in the context of schools, state agencies, and federallysponsored projects. Consultative arrangements made for students; discussions and field work.

P836 Seminar in Educational Sociology and Educational Anthropology
Seminar in selected topics in educational sociology and educational anthropology.

P837 Seminar in Educational History
Seminar in selected periods or topics of educational history.

P843 History of European Education
Educational movements and institution traced from early Greece to the preser in Europe, in an attempt to understan modern problems better.

P844 History of Higher Education in America
The role of the college and university i American society, past and present. Th meaning of a college education a various periods in American life.

P855 Community Relations for School Personnel
The development of good public relations policies and techniques fc assisting lay people in interpreting schoc activities, policies, and objectives. Prere quisite, permission of instructor.

P856 Principles of School Law
Review of the legal relations of schoc personnel in school and community. A series of selected cases.

P857 Legal Basis of School Administration
The legal basis of school operation, case in school law, the role of the attorne general and school solicitor in school la interpretation, and school operation i relation to federal, state, and local en vironment. Prerequisite, P726.

P861 Case Studies in Educational Administration
A series of situations involving the role o the school administrator in a democracy Prerequisites, P726 and P758.

P862 Educational Planning and Evaluation
Participation in a school survey to giv advanced graduate students practica field experience in inspection evaluatio and recommendations for future actio in the educational operation. Prere quisites, P726, P759, P760 and permis sion of instructor. Taught in two con secutive semesters.
Credit, 6.

P863 Internship in Educational Administration
For advanced graduate students i educational administration. Placemen on assignment in actual school ad ministration positions on the basis o cooperative school system-universit selection, assignment and supervision Prerequisites, 18 semester hours i educational administration and permis sion of instructor.
Credit, 1-12.

P865 Theory and Research in Educational Leadership
The historical development of administrative theory. Emphasis on its contribution to research and development in educational administration. Prerequisite, P726.

P866 Curriculum Development: Theory and Research
The needs of children and society; modern programs; procedures for developing curricula and improving present offering in a school. Includes clinical involvement in curriculum development in schools cooperating with the Center for Study of Educational Innovations.

P867 Readings in Organizational Development and Change
Readings and critical analysis in behavioral science areas of Organizational Development and Change. Indepth reading of the field's top books and journals.

P868 Advanced Seminar in Curriculum and Organizational Theory
The relationship between theory and practice in curriculum and organization. What organizational theory suggests for implementing school improvement. Emphasis on analysis and creation of leadership behavior.

P869 Evaluation of Curriculum Programs
The role of evaluation in curriculum development and the development of evaluative instruments. The nature of the educational environment of schools and the need for determining what makes a compelling curricular program. Prerequisites, P665 and P866.

P870 Special Problems in International Education
Independent work in international education.
Credit, 1-6.

P880 Current Issues in Education
In-depth exploration of historical antecedents, present conditions, and future alternatives. Fulfills the "Foundations" requirement for students seeking teacher certification.

P881 Comparative Education
The processes and problems of educational development in selected areas throughout the world. The interrelationship between education and culture explored in a multicultural context. While historical antecedents are recognized, major emphasis is on the cultural forces responsible for contemporary educational practices. Fulfills "Foundations" requirement for students seeking teacher certification.

P884 Educational Sociology
The American public schools as one of many social institutions in the American culture. Emphasis on population, pressure groups, and the social structure of the schools within the community. Optional field experience. Fulfills "Foundations" requirement for students seeking teacher certification.

P886 Modern Educational Thought
Representative educational thinkers of this era.

P887 History of American Education
A survey of the development of education in the United States. The uses which society has made of American schools.

P888 Ancient and Medieval Educational Thought
Representative educational thinkers during the ancient and medieval periods.

Human Development

HUMDEV 510 Language and Cognitive Development
Language and cognition from the development point of view. Emphasis on the relationship between language and thought and changes in that relationship in the course of cognitive growth. Prerequisite, HUMDEV 570 or equivalent.

HUMDEV 570 Child Development
The child from the developmental point of view. Emphasis on interaction of heredity and environment on development. Prerequisites, SOC 101, PSYCH 101, or permission of instructor.

HUMDEV 571 The Ghetto Family
Family relationships and styles of life of lower socio-economic status families. Emphasizes social and psychological factors that influence interpersonal relationships and life strategies among the poor. Prerequisite, HUMDEV 570 or permission of instructor.

HUMDEV 572 Alternate Family Styles
Comparative evaluation of the traditional nuclear monogamous family and alternative family structures developed in this society.

HUMDEV 581 Laboratory School Management
Principles and methods of early childhood education. Includes teaching methods and curriculum planning for two to five-year-old children. Prerequisite, HUMDEV 570 or equivalent.

HUMDEV 582 Philosophy and Theories of Early Childhood Education
Philosophy, theories, and history of early childhood education. Field trips. Prerequisite, HUMDEV 581 or permission of instructor.

HUMDEV 600 Human Development in Infancy
Development of the infant from birth to age two. Prerequisite, HUMDEV 570 or permission of instructor.

HUMDEV 660 Theories of Human Development
The major theories of human development. Emphasis on psychological theories and concepts. The relevance and relationship of biological, social and anthropological concepts. Prerequisite, HUMDEV 570 or equivalent.

HUMDEV 662 Seminar
Readings, reports and discussions on the current literature in the area of Human Development.
Credit, 1-3

HUMDEV 670 Human Development in Adolescence and Young Adulthood
Human development during the second decade of life. Emphasis on biological, psychological, and sociological aspects. Theories of adolescent development. Prerequisite, HUMDEV 570 or permission of instructor. Human Development majors only.

HUMDEV 673 Research Methods in Human Development
Methods and techniques for studying developmental processes at various stages of the life span, from infancy to old age. Prerequisite, HUMDEV 570 or equivalent, or concurrently with HUMDEV 570.

HUMDEV 680 Human Development in Adulthood
Human development from young adulthood through old age. A social psychological perspective of change across the adult life span. Prerequisite, HUMDEV 570 or equivalent, or permission of instructor.

Electrical and Computer Engineering

Graduate Faculty

Charles E. Hutchinson, *Professor and Head of the Department of Electrical and Computer Engineering,* B.S., Illinois Institute of Technology, 1957; M.S., Stanford, 1961; Ph.D., 1963.

Richard V. Monopoli, *Professor and Graduate Program Director,* B.S., U.S. Naval Academy, 1952; M.S., Brown, 1960; Ph.D., Connecticut, 1965.

Leonard S. Bobrow, *Associate Professor,* B.S., University of Miami, 1962; M.S., Northwestern University, 1964; Ph.D., 1968.

Roger W. Ehrich, *Associate Professor,* B.S., University of Rochester, 1965; M.S., Northwestern, 1967; Ph.D., 1969.

Lewis E. Franks, *Professor,* B.S. Oregon State, 1952; M.S., Stanford, 1953; Ph.D., 1957.

Herbert A. Herchenreder, *Assistant Professor,* B.S., University of Missouri, 1951; M.S., Connecticut, 1957.

Francis S. Hill, Jr., *Associate Professor,* B.E., Yale, 1962; M.E., 1964; Ph.D., 1968.

Walter H. Kohler, *Assistant Professor,* B.S., Princeton, 1967; M.S., 1968; Ph.D., 1972.

Robert E. McIntosh, *Professor,* B.S., Worcester Polytechnic Institute, 1962; M.S., Harvard, 1963; Ph.D., University of Iowa, 1967.

David H. Navon, *Professor,* B.E.E., City College of New York, 1947; M.S., New York University, 1950; Ph.D., Purdue, 1953.

Donald E. Scott, *Associate Professor,* B.S., Connecticut, 1957; M.S., 1959; Ph.D., Worcester Polytechnic Institute, 1968.

G. Dale Sheckels, *Professor,* B.S., University of Washington, 1938; M.S., Massachusetts Institute of Technology, 1940; Ph.D., Iowa State, 1955.

Harold S. Stone, *Professor,* B.S.E., Princeton, 1960; M.S., University of California, 1961; Ph.D., 1963.

Ting-wei Tang, *Professor,* B.S., National Taiwan University, 1957; M.S., Brown, 1961; Ph.D., 1964.

Donald F. Towsley, *Assistant Professor,* B.A., Texas, 1971; Ph.D., 1975.

Jack K. Wolf, *Professor,* B.S., University of Pennsylvania, 1956; M.S., Princeton, 1957; M.A., 1958; Ph.D., 1960.

Sigfrid Yngvesson, *Associate Professor,* Teknologie Licentiat, Chalmers Institute of Technology, Sweden, 1964; Teknologie Doktor, 1968.

Adjunct Faculty

Ronald L. Fante, B.S., University of Pennsylvania, 1958; M.S., Massachusetts Institute of Technology, 1960; Ph.D., Princeton, 1963.

Olaf E.H. Rydbeck, M.S., Royal Institute of Technology, Stockholm, 1936; D.Sc., Harvard, 1940.

Lester C. Van Atta, B.S., Reed College, 1927; Ph.D., Washington University, 1931.

Affiliated Faculty

Michael A. Arbib, *Professor of Computer and Information Science.*

Caxton C. Foster, *Professor of Computer and Information Science.*

Robert M. Graham, *Professor of Computer and Information Science*

Henry F. Ledgard, *Associate Professor of Computer and Information Science.*

Edward M. Riseman, *Associate Professor of Computer and Information Science.*

Conrad A. Wogrin, *Professor of Computer and Information Science.*

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM

There is no formal course requirement for the Ph.D. degree. Typical programs include approximately 24 credits of course work beyond the course requirements for the M.S. degree. Residency, dissertation, and examination requirements are described in the General Information Section of this *Bulletin.* A brochure containing detailed information on requirements for the Ph.D. degree in Electrical and Computer Engineering is available from the Departmental Graduate Committee.

THE MASTER OF SCIENCE DEGREE PROGRAM

A student entering the M.S. degree program in Electrical and Computer Engineering is assigned to a faculty member who acts as his/her program adviser. With the approval of the program adviser, the student selects a unified program consisting of 33 or more graduate credits, normally from courses chosen from the fields of engineering, mathematics, physics and computer science. The student also has the option of selecting a program which involves the preparation of a thesis (ECE 800, 6 credits) with only 24 additional course credits required. In this case the student selects a major thesis adviser, usually after one semester of study, and in consultation with the thesis adviser, submits a proposal for thesis research to the Departmental Graduate Committee.
A brochure containing detailed information on the requirements for the M.S. degree in Electrical and Computer Engineering is available from the Departmental Graduate Committee.

RESEARCH IN ELECTRICAL AND COMPUTER ENGINEERING

The Electrical and Computer Engineering Department is conducting active research and has supporting academic programs in the following areas:

1. Computer Systems Engineering.
2. Communications and Signal Processing
3. Systems and Control Theory
4. Man-Machine Systems.
5. Solid State Devices and Microelectronics.
6. Electrodynamics and Plasma Physics.
7. Ocean Engineering.
8. Masers and Lasers.
9. Radio Astronomy and Antenna Systems

All courses carry 3 credits unless otherwise specified.

511 Applied Nonlinear Analysis
The analysis of nonlinear mechanical and electrical systems. Numerical, graphical, and analytical methods used to determine the behavior of modern nonlinear devices. Mr. McIntosh

542 Non-Numerical Processing
Introduction to basic mathematical and logical concepts relevant to description and manipulation of information structures such as lists, trees, and graphs. Prerequisites, programming experience. Mr. Kohler, Mr. Towsley

544 Programming Structures
Introduction to common programming languages (FORTRAN, PASCAL

ALGOL, COBOL, APL, LISP, etc.) and the basic concepts underlying programming language design and implementation. Prerequisite, ECE 542.
Mr. Ehrich, Mr. Kohler, Mr. Towsley

546 Simulation of Dynamic Systems
Designed for computer science or engineering students interested in the hybrid computer as a computational tool. Review of analog and digital computers and their combination. Prerequisite, permission of instructor.
Mr. Hutchinson, Mr. Monopoli

547 Modern Logic Design
Design and construction of digital computers with emphasis on the use of modern device technology. Medium and large-scale integrated circuits; microprocessors; random-access and read-only memories. Prerequisites, introductory logic design. Mr. Stone

548 Advanced Switching Theory
Topics of contemporary interest in digital switching theory and logical design. State-of-the-art techniques in computer hardware design. Prerequisite, ECE 410. Mr. Stone

550 Computer Systems Lab I
Subunits of digital computer systems and their control. Registers, accumulators, arithmetic units, and memories and their interconnection.

554 Computer Systems Laboratory II
Project laboratory in advanced computer systems engineering including designs of integrated hardware/software systems and studies of current computer techniques. Nine laboratoory hours. Prerequisite, permission of instructor. Staff

556 Introduction to Automata Theory
An introduction to formal processes of computation. Computability, automata, algorithms, recursive functions. Formal systems, computing power of machines, and automata as examples of formal systems. Prerequisite, permission of instructor.
Mr. Ehrich, Mr. Kohler

560 Computer Graphics
Basic organization of computer-driven graphical display systems. Methods for generation and manipulation of vectors and characters for real-time display. Data structures for picture and text processing. Prerequisites, COINS 533, ECE 542.

562 Self-Organizing Systems and Pattern Recognition
Several aspects of self-organizing systems and pattern recognition including machine intelligence, adaptation, learning, and self-repair.

566 Signal Processing and Communication Systems I
Principles of design of modern communication systems. Mathematical description of digital and analog signals. Basic limitations of modulation techniques and information capacity of transmission systems. Prerequisites, ECE 302, 304. Mr. Franks, Mr. Hill

567 Signal Processing and Communication Systems II
Techniques for evaluating performance of modulation and information transmission systems. Extraction of signals from noise. Minimum error signal estimation and detection. Prerequisites, ECE 566, 465 or permission of instructor. Mr. Franks, Mr. Hill

570 Solid State Devices
Power rectifiers, power transistors, high frequency, high power transistors, thyristors, power circuits: regulators, inverters, converters and cyclo-converting, phase-control circuits, motor control circuits. Prerequisites, ECE 401, 302.
Mr. Navon, Mr. Yngvesson

571 Microelectronics
Principles and applications of microelectronics with particular emphasis on silicon monolithic integrated circuits. Fundamental limitations of microminiaturization, design constraints imposed by the monolithic technique, planar technology, digital and linear microcircuits. Prerequisite, ECE 401.
Mr. Navon

575 Communication and System Lab
Projects designed to provide laboratory experience related to specific technical electives. Prerequisite, senior standing.

576 Electrophysics Lab
Projects designed to provide laboratory experience related to specific technical electives. Prerequisite, senior standing.

578 Digital System Design
A design-oriented approach to the structure and design of general purpose digital computers. Prerequisite, ECE 410; Recomm. COINS 201.
Mr. Edwards, Mr. Ehrich

579 Microprocessors
The microprocessor in digital control systems—the substitution of software for hardware in logic design and the interface of the microprocessor with external devices. Architectural features of current microprocessors. Prerequisite, ECE 578. Mr. Edwards, Mr. Kohler

580 Feedback Control Systems I
Time domain and frequency domain analysis and synthesis techniques for linear continuous control systems. The relationships between these techniques. Prerequisites, ECE 212 or permission of instructor. Mr. Hutchinson, Mr. Monopoli, Mr. Scott

581 Feedback Control Systems II
The analysis of nonlinear continuous control systems and an introduction to digital control systems and optimization techniques. Prerequisite, ECE 580.
Mr. Hutchinson, Mr. Monopoli, Mr. Scott

584 Microwave Engineering I
Electromagnetic theory applied to microwave propagation in waveguides and coaxial lines. Microwave circuit theory with applications to passive microwave networks. Prerequisite, ECE 358. Mr. McIntosh
Mr. Tang, Mr. Yngvesson

585 Microwave Engineering II
Continuation of ECE 584; selected topics in the areas of solid state devices, wave propagation, antennas, and plasmas. Prerequisite, ECE 584.
Mr. McIntosh, Mr. Tang, Mr. Yngvesson

602 Algebra and Coding
An introduction to modern algebra including groups, rings, fields and ideals. Group codes, cyclic codes including random and burst error correcting codes. Applications.
Mr. Bobrow, Mr. Wolf

603 Probability and Random Processes
Elementary probability theory including random variables, p.d.f., c.d.f., generating functions, law of large numbers. Elementary stochastic process theory including covariance and power spectral density. Applications to information theory.
Mr. Bobrow, Mr. Wolf

604 State Variable Analysis
Matrix analysis, state variables and state space techniques. Concepts of controllability and observability. Stability

analysis via Liapunov's and Popov's method, phase plane and describing function.
Mr. Hutchinson, Mr. Monopoli

605 Analysis of Linear Systems
Complex variables, modern systems analysis basic to network synthesis, control systems, and communication systems; including Laplace, Fourier, and z transforms and convolution.
Mr. McIntosh, Mr. Tang

606 Electromagnetic Field Theory
Microscopic and macroscopic properties of magnetic and insulating materials; gyromagnetism and the permeability tensor; reflection and refraction; skin effect; antenna analysis; relativistic electrodynamics. Prerequisite, ECE 357 or equivalent. Mr. McIntosh, Mr. Tang

607 Modern Solid-State Engineering
Fundamental quantum mechanical principles, a basis for advanced courses in semiconductor electronics, microwave magnetics, quantum electronics, etc. Solutions of Schrodinger's equation pertinent for electrical engineers. Prerequisite, ECE 401 or equivalent.
Mr. Navon, Mr. Yngvesson

608 Signal Theory I.
Unified treatment of techniques for representation of signals and signal processing operations. Emphasis on physical interpretation of vector spaces, linear operators, transform theory, and optimal design of signals.
Mr. Franks, Mr. Hill

648 Network Synthesis
A survey of practical methods for design of filter networks. Passive LC and active RC design techniques. Distributed element filters. Variable-parameter filters. Digital filters. Prerequisite, ECE 304 or equivalent. Mr. Franks

650 Graph Theory and its Applications
Fundamental concepts of graph theory including circuits, cut-sets, paths, and duality. Application to network analysis and synthesis, switching theory, variable-length and error-correcting codes, and communication networks.
Mr. Bobrow

651 Switching and Automata Theory
Homing and diagnosis of sequential machines, fault detection and diagnosis of combinatorial and sequential networks. State assignment in sequential machines, linear sequential machines, universal modules, and related decision problems. Prerequisites, ECE 410, 548, or equivalent. Mr. Ehrich

652 Optimation Theory and Practice
Mathematical formulation and techniques of optimization; constrained extremization of functions of several variables; geometric and linear programming; calculus of variations; dynamic programming; search techniques; game theory. Mr. Hill

668 Advanced Computer Architecture I
The essential knowledge of computer architecture in depth. The important aspects of the architecture of conventional computers and hand calculators. Prerequisite, undergraduate course in Computer Architecture.
Mr. Stone, Mr. Towsley

669 Advanced Computer Architecture II
Advanced topics in computer architecture including stack computers, parallel and pipeline computers, microprogramming and introduction to performance evaluation. Prerequisite, ECE 668 or permission of instructor.
Mr. Stone, Mr. Kohler, Mr. Towsley

671 Computer Communication Networks
Broad overview of problems and solutions in the design of computer communication networks; elementary queueing theory; capacity assignments; concentrators; topological design; routing, flow control, line control; random access techniques.
Mr. Towsely, Mr. Wolf, Mr. Kohler

672 Design and Analysis of Computer Algorithms
Unifying principles and underlying concepts of algorithm design and performance analysis. Complexity measures; fundamental algorithmic techniques; analysis of sorting, graph, and set manipulation algorithms; exact and approximate algorithms for NP-complete problems. Prerequisites, ECE 542, or equivalent.

673 Performance Evaluation
Techniques for the analysis of computer system performance. Queueing theory, central server networks; discrete simulation techniques; applications to computer systems; hardware and software monitors. Prerequisites, ECE 542 or equivalent.
Mr. Towsley, Mr. Kohler

699 Master's Thesis

700 Special Problems
Recent advances and current problem in a specialized field of electrical engineering. Prerequisite, permission instructor.

711 Advanced Microwave Engineering
Analysis of waveguides, gyrators, antennas, and other microwave circu elements; electron ballistics; ionosph ric reflection; and refraction and th permittivity tensor; microwave gene ators; masers and lasers. Prerequisite ECE 584 and 606 or equivalent.
Mr. McIntosh, Mr. Yngvesso

712 Introduction to Plasma Dynamics
Fundamentals of plasma physics: mo tion of a charged particle in electroma netic fields, magnetoionic theory, th Boltzmann and Vlasov equations fo plasmas, and wave propagatio through a plasma medium. Prere quisite, ECE 606.
Mr. McIntosh, Mr. Tan

721 Modern Engineering Magnetics
Paramagnetism, ferro- and ferrimagne tism, magnetic domains, Ising mode spin waves, ferromagnetic resonance ferrite devices, microwave ultrasonics i magnetic materials. Prerequisite, EC 607. Mr. McIntosh, Mr. Yngvesso

722 Physical Semiconductor Electronics
Crystallography of solids, band theor of solids, quantum theory of electrons i a periodic lattice, dynamics of lattic vibrations, semiconductors—equilib rium and transient behavior, moder quantum electronic devices. Prerequi site, ECE 607. Mr. Navo

723 Principles of Masers and Lasers
Quantum-mechanical description o typical maser and laser materials, fun damentals of maser amplification analysis of maser and laser devices review of applications. Prerequisite ECE 607. Mr. Yngvesso

725 Energy Storage and Processing (OE 721)
Methods of energy generation, conver sion, and control, with emphasis on th utilization for deep-sea submersibl vehicles. Mr. Monopoli
Mr. Navon, Mr. Sheckel

733 Digital Control Systems
Pulse transfer functions and state tran sition analysis applied to discrete-data systems. Nonconventional sampling Nonlinear sampled data systems. Dy

namic programming and computer control. Prerequisite, ECE 604.
Mr. Monopoli, Mr. Hutchinson

34 Optimum Control Systems
Analytical design of optimum linear systems. Calculus of variations. Pontryagin's Maximum Principle, and applications to design of optimun systems. Minimum mean square estimation and control. Prerequisite, ECE 604.
Mr. Hutchinson, Mr. Monopoli

41 Signal Theory II
Signal Space methods applied to random processes, giving the modern interpretation of optimum filtering, signal parameter estimation, and signal detection. Many examples of practical application. Prerequisite, ECE 608.
Mr. Franks, Mr. Hill

45 Information Transmission Systems
Practical topics in the design of data transmission systems. Modulation, coding, and multiplexing formats. Fixed and adaptive channel equalization. Systems performance evaluation. Prerequisite, ECE 603 or equivalent.
Mr. Franks, Mr. Hill, Mr. Wolf

46 Statistical Communication Theory
Basic theories of signal parameter estimation and signal detection. Bayes and maximum likelihood decision and estimation rules. Wiener and Kalman filters for continuous waveform estimation. Prerequisite, ECE 603 or equivalent. Mr. Franks, Mr. Hill, Mr. Wolf

73 Computer Systems Modeling
Advanced mathematical techniques for the modeling of computer system behavior. Advanced queueing theory; priority scheduling, approximation techniques; memory performance modeling; optimization techniques for computer systems, mathematical programming. Prerequisite, ECE 673.
Mr. Towsley, Mr. Kohler

85 Selected Topics in Control Systems
Topics selected from the current literature. An investigation in depth of problems relating to particular aspects of automatic control theory.
Credit, 1-3.

86 Selected Topics in Communications
Topics for various aspects of present interest in the field of communications with emphasis on concurrent reading of the literature.
Credit, 1-3.

787 Selected Topics in Computer Engineering
Topics of current interest in computers, automata, and related areas. Specific topics selected from the literature.
Credit, 1-3.

793,794 Seminar in Electrical Engineering
Presentations of current research activities and literature by faculty and graduate students.
Credit, 1 each semester.

813 Advanced Plasma Dynamics
Review of classical kinetic theory. The BBGKY hierarchy and other kinetic equations for plasmas. Applications to waves in cold and hot plasmas, plasma radiations and instabilities. Prerequisite, ECE 712.
Mr. McIntosh, Mr. Tang

835 Adaptive Control
The problem of system identification, performance criteria and decision-making, and the implementation of adaptive techniques. Application of adaptive techniques to aircraft flight control. Prerequisite, ECE 733, 734.
Mr. Hutchinson, Mr. Monopoli

Graduate Faculty

Charles Moran, *Associate Professor and Acting Chairman of the Department of English,* A.B., Princeton, 1958; A.M., Brown, 1962; Ph.D., 1967.

Roberts W. French, *Professor and Graduate Program Director,* D.A., Dartmouth, 1956; M.A., Yale, 1959; Ph.D., Brown, 1964.

James Leheny, *Associate Professor and Associate Program Director,* B.A., Connecticut, 1961; M.A., Washington University, 1963; Ph.D., 1968.

Tamas Aczel, *Professor,* B.A., University of Budapest, 1948; M.A., 1950.

Gary L. Aho, *Associate Professor,* B.A., Portland State College, 1959; Ph.D., University of Oregon, 1966.

Jeremiah Allen, *Professor and Acting Vice-Chancellor for Academic Affairs and Provost,* B.A., Duke, 1947; M.A., Tufts, 1948; Ph.D., Colorado, 1956.

Thomas L. Ashton, *Associate Professor,* B.A., City College of New York, 1963; M.A., Columbia, 1964; Ph.D., 1969.

Robert E. Bagg, *Professor,* B.A., Amherst, 1957; M.A., Connecticut, 1961; Ph.D., 1965.

Leon Barron, *Associate Professor,* B.A., Massachusetts, 1947; M.A., Minnesota, 1947; Ph.D., Harvard, 1960.

Nancy Lee Beaty, *Associate Professor,* B.A., Wellesley, 1943; M.A., Yale, 1947; Ph.D., 1956.

Bernard Bell, *Associate Professor,* B.A., Howard University, 1962; M.A., 1966; Ph.D., Massachusetts, 1970.

Normand Berlin, *Professor,* B.A., New York University, 1953; M.A., 1966; Ph.D., California at Berkeley, 1964.

Howard O. Brogan, *Commonwealth Professor,* B.A., Grinnell College, 1936; M.A., State University of Iowa, 1938; Ph.D., Yale, 1941.

George Carey, *Professor,* B.A., Middlebury, 1958; M.A., Indiana, 1962; Ph.D., 1966.

Jules Chametzky, *Professor,* B.A., Brooklyn College, 1950; M.A., Minnesota, 1952; Ph.D., 1958.

Donald S. Cheney, *Professor,* B.A., Yale, 1954; M.A., 1957; Ph.D., 1961.

David R. Clark, *Professor*, B.A., Wesleyan, 1947; M.A., Yale, 1950; Ph.D., 1955.

John Clayton, *Associate Professor*, B.A., Columbia College, 1956; M.A., New York University, 1959; Ph.D., Indiana, 1966.

Dan S. Collins, *Associate Professor*, B.A., Pennsylvania, 1941; M.A., University of North Carolina, 1951; Ph.D., 1962.

Robert P. Creed, *Professor*, B.A., Swarthmore College, 1948; M.A., Harvard, 1949; Ph.D., 1956.

Margaret Culley, *Assistant Professor*, B.A., Manhattanville College, 1964; M.A., Rutgers University, 1965; Ph.D., University of Michigan, 1972.

George Cuomo, *Professor*, B.A., Tufts, 1952; M.A., Indiana, 1954.

Arlyn Diamond, *Associate Professor*, B.A., California, 1961; Columbia, 1962; Ph.D., California at Berkeley, 1970.

Vincent DiMarco, *Associate Professor*, B.A., New York at Buffalo, 1966; M.A., Pennsylvania, 1967; Ph.D., 1972.

Joseph W. Donohue, Jr., *Professor*, B.A., Johns Hopkins, 1956; M.A., Georgetown, 1961; Ph.D., Princeton, 1965.

Audrey R. Duckert, *Professor*, B.A., Wisconsin, 1948; M.A., 1949; Ph.D., Radcliffe College, 1959.

Lee R. Edwards, *Associate Professor*, B.A., Swarthmore, 1962; M.A., California at Berkeley, 1965; Ph.D., 1969.

Michael Egan, *Associate Professor*, B.A., Witwatersrand University, 1963; B.A. Honors, Fitzwilliam College, Cambridge, 1965; M.A., Ph.D., 1968.

Everett H. Emerson, *Professor*, B.A., Harvard, 1948; M.A., Duke, 1949; Ph.D., Louisiana State, 1955.

Kirby Farrell, *Associate Professor*, B.A. Clark, 1964; M.A., Rutgers, 1968; Ph.D., 1972.

Andrew Fetler, *Professor*, B.S., Loyola, 1959; M.F.A., State University of Iowa, 1964.

Joseph Frank, *Professor*, B.A., Harvard, 1939; M.A., 1947; Ph.D., 1953.

James A. Freeman, *Associate Professor*, B.A., Amherst, 1956; Ph.D., Minnesota, 1968.

Ernest Gallo, *Professor*, B.A., St. John's, 1954; M.A., New York, 1957; Ph.D., 1965.

Walker Gibson, *Professor*, B.A., Yale, 1940; M.A., University of Iowa, 1946.

Morris Golden, *Professor*, B.A., City College of New York, 1948; M.A., New York University, 1949; Ph.D., 1953.

Raymond Gozzi, *Associate Professor*, B.A., Amherst College, 1942; M.A., Columbia, 1947; Ph.D., New York University, 1957.

Richard Haven, *Professor*, B.A., Harvard, 1948; M.A., Princeton, 1952; Ph.D., 1958.

John H. Hicks, *Professor*, B.A., Middlebury, 1941; M.A., Boston University, 1952; Ph.D., 1961.

Priscilla G. Hicks, *Assistant Professor*, B.A., Wellesley, 1948; M.A., University of Michigan, 1949; Ph.D., Boston University, 1960.

Ernest H. Hofer, *Professor*, B.A., Brown, 1945; M.A., 1947; Ph.D., Cornell, 1959.

Floriana T. Hogan, *Associate Professor*, B.S., Boston University, 1940; M.A., 1941; Ph.D., 1955.

Robert Hoopes, *Professor*, A.B., Cornell 1941; A.M., Boston University, 1942; M.A., Harvard, 1948; Ph.D., 1949.

John A. Hunt, *Associate Professor*, B.A., Washington & Lee University, 1952; Ph.D., Shakespeare Institute, Stratford-on-Avon, England, 1965.

Donald Junkins, *Professor and Director of the M.F.A. Program*, B.A., Massachusetts, 1953; S.T.B., Boston, 1955; S.T.M., 1957; M.A., 1959; Ph.D., 1963.

Sidney Kaplan, *Professor*, B.A., College of the City of New York, 1942; M.A., Boston University, 1948; Ph.D., Harvard, 1960.

Robert Keefe, *Assistant Professor*, B.A., Brandeis, 1964; M.A., Princeton, 1966; Ph.D., 1968.

Arthur Kinney, *Professor*, B.A., Syracuse, 1955; M.S., Columbia, 1956; Ph.D., University of Michigan, 1963.

G. Stanley Koehler, *Professor*, B.A., Princeton, 1936; M.A., Harvard, 1937; M.A., Princeton, 1938; Ph.D., 1942.

Joseph Langland, *Professor*, B.A., State University of Iowa, 1940; M.A., 1941.

Mason I. Lowance, Jr., *Professor*, B.A., Princeton, 1960; B.A., Oxford, 1964; M.A., 1966; Ph.D., Emory, 1967.

Paul L. Mariani, *Professor*, B.A. Manhattan College, 1962; M.A., Colgate 1964; Ph.D., City University of New York 1967.

James Matlack, *Assistant Professor*, B.A. Princeton, 1960; B.A., M.A., Oxford University, 1962; M.A., Yale, 1964; Ph.D 1967.

Harold McCarthy, *Professor*, B.A., Massachusetts, 1941; M.A., Harvard, 1942; Ph.D., 1950.

John H. Mitchell, *Professor*, B.S., Bowdoin, 1943; M.A., Harvard, 1947.

Arthur B. Musgrave, *Professor and Director of Fellowship Program for Journalists*, B.S., Boston University, 1951; M.S., 1951 Ph.D., Minnesota, 1961.

John R. Nelson, Jr., *Associate Professor*, B.A., Hamilton College, 1959; M.A., Maine, 1962; Ph.D., Oregon, 1967.

Jan Neugeboren, *Associate Professor and Resident Writer*, B.A., Columbia, 1959; M.A., Indiana, 1963.

Richard Noland, *Professor and Acting Dean of Humanities and Fine Arts*, B.A., Emory, 1954; M.D., 1958; M.A., Columbia, 1961; Ph.D., 1968.

William G. O'Donnell, *Professor*, B.S., Massachusetts, 1938; M.A., Yale, 1940; Ph.D., 1942.

Alex Page, *Professor*, B.A., Vermont, 1948; M.A., Harvard, 1949; Ph.D., 1953.

David Paroissien, *Associate Professor*, B.A., University of Hull, England, 1961; M.A., New Mexico Highlands University, 1965; Ph.D., California at Los Angeles, 1968.

David T. Porter, *Professor*, B.A., Hamilton, 1950; Ph.D., Rochester, 1963.

Jonathan Quick, *Assistant Professor*, B.A. Rutgers, 1963; M.A., Yale, 1966; Ph.D., 1968.

Meredith B. Raymond, *Associate Professo* B.S., Bridgewater State, 1939; M.A., Middlebury, 1943; Ph.D., Boston University, 1964.

Frederick Robinson, *Assistant Professor*, B.A., University of Redlands, 1964; M.A., University of Washington, 1966; Ph.D., 1972.

Seymour Rudin, *Professor*, B.A., City College of New York, 1941; M.S., 1943; Ph.D. Cornell, 1953.

'aul F. Saagpakk, *Professor,* Ph.D., Colmbia, 1966.

ack Shadoian, *Associate Professor,* B.A., ity College of New York, 1963; M.A., onnecticut, 1965; Ph.D., 1967.

ames Shaw, *Lecturer and Associate Dean f the College of Arts and Sciences,* B.A., tterbein, 1954; M.A., University of lichigan, 1957; Ph.D., 1966.

rnold J. Silver, *Associate Professor,* B.A., lew York University, 1947; M.A., Columia, 1948; Ph.D., 1958.

ohn E. Sitter, *Associate Professor,* B.A., larvard, 1966; Ph.D., Minnesota, 1969.

oseph Skerrett, *Assistant Professor,* B.A., aint Francis College, 1964; M.A., Johns opkins University, 1965; M. Phil., Yale niversity, 1972; Ph.D., 1975.

harles Kay Smith, *Assistant Professor,* .A., Amherst, 1957.

ernard Spivack, *Professor,* B.A., labama, 1931; M.A., Harvard, 1932; n.D., Columbia, 1950.

harlotte K. Spivack, *Professor,* B.A., New ork at Albany, 1947; M.A., Cornell, 1948; n.D., University of Missouri, 1954.

athleen M. Swaim, *Professor,* B.A., Getsburg College, 1957; M.A., Pennsylvania ate, 1958; M.A., Middlebury, 1963; n.D., Pennsylvania, 1966.

mes Tate, *Associate Professor,* B.A., Kans State College of Pittsburg, 1965; .F.A., Iowa, 1967.

obert G. Tucker, *Professor,* B.A., nherst, 1949; M.A., Harvard, 1951; n.D., State University of Iowa, 1961.

ederick W. Turner, III, *Associate Proor,* B.A., Denison, 1959; M.A., Ohio, 61; Ph.D., Pennsylvania, 1965.

hn C. Weston, Jr., *Professor,* M.A., icago, 1950; Ph.D., North Carolina, 56.

nthia Wolff, *Professor,* B.A., Radcliffe, 58; Ph.D., Harvard, 1965.

ichael Wolff, *Professor,* B.A., Camidge, 1948; M.A., St. John's, 1955; Ph.D., inceton, 1958.

oward Ziff, *Professor,* B.A., Amherst, 52; Advanced Fellow Certificate, Column, 1964.

Graduate Programs in English

The Department of English offers programs leading to the degrees of M.A., M.A.T., M.F.A., and Ph.D.

MASTER'S DEGREE PROGRAMS

For students who specify their candidacy in a doctoral degree program, the following is required for a Master's degree:

1. Eight graduate courses successfully completed with a cumulative average of B or above. Of these eight courses, one may be taken in a department other than English, and one must be in the field of Early English, History of the Language, Medieval Literature, or Linguistics;
2. Proficiency in a foreign language;
3. Performance in an oral examination manifesting preparation worthy of six graduate credits.

For students who specify their candidacy in a terminal Master's degree program, the following is required:

1. Ten graduate courses successfully completed with a cumulative average of B or above. Of these ten courses, one may be taken in a department other than English, and one must be in the field of Early English; History of the Language, Medieval Literature, or Linguistics;
2. Proficiency in a foreign language.

MASTER OF ARTS IN TEACHING PROGRAM

For students in the M.A.T. Program in English, the following is required:

1. Twenty-one hours of graduate work in English and American language and literature;
2. Nine hours of professional education courses;
3. Nine hours of supervised student teaching;
4. Proficiency in a foreign language.

The M.A.T. Program also offers a Jr./Community College teaching option with the following requirements:

1. Twenty-four hours of graduate work in English and American language and literature;
2. Twelve hours of professional education courses;
3. Nine hours of supervised student teaching;
4. Proficiency in a foreign language.

MASTER OF FINE ARTS IN ENGLISH

This degree, based upon a two- to three-year program of 60 hours, is designed for qualified graduate students who are determined to become writers of fiction, poetry or drama, and who wish to prepare themselves for the variety of positions related to the profession of writer, including the college teaching of English.

The normal standards for admission to the graduate study in English apply, except that applicants for the M.F.A. must also submit supplementary original writing in fiction, poetry or drama: two short stories, or 30 to 40 pages of fiction; from 10 to 15 pages of poetry; or one full act of a play. Manuscripts should be mailed separately to the Director of the M.F.A. Program in English, Bartlett Hall, University of Massachusetts, Amherst, MA 01003.

Candidates must either pass one foreign language examination or translate a body of work from another language. Candidates must also pass an oral examination including a defense of the thesis, which should constitute a book-length manuscript of fiction, poetry or drama, of publishable quality.

The 60 hours of work are apportioned as follows: 24 hours of courses in imaginative writing (four workshops); six hours of thesis credit; six hours in another appropriately related field of study; 24 hours in American and English literature and language, including at least two courses in the modern and contemporary genre of the student's speciality (fiction, poetry or drama), and one each in either modern or contemporary courses in the other two genres.

Application forms should be obtained from and returned to the Graduate School. Deadline for applications is March 1. although applicants are encouraged to submit manuscripts earlier.

DOCTOR OF PHILOSOPHY PROGRAM

Time required to complete the doctoral program is normally three years beyond the Master's degree; credits become invalid six years after admission to the University as a full-time graduate student.

For students in the doctoral program, the following requirements are in addition to those for the Master's degree:

1. Recommendation for the doctoral program by the committee for the qualifying examination;

2. Eight courses, of which six must be seminars or the equivalent, with a cumulative average of B or above;
3. Successful completion of the language requirements;
4. Residence for one year;
5. Satisfactory performance in the Ph.D. ("three-area") examination;
6. Satisfactory completion of a dissertation;
7. Some teaching experience.

All courses carry 3 credits unless otherwise specified.

599 MAT Supervised Student Teaching
Supervised experience in secondary school teaching arranged through the MAT Director.
Credit, 9.

699 Master's Thesis
May be repeated by M.F.A. candidates for a total of 18 credits.
Credit, 3-9.

701 History of the English Language
Development of the English language. Continuing as well as accomplished changes and variations in sounds, forms, and usage. Survey of dictionaries and grammar in context of teaching.
Ms. Duckert

702 Old English
Introduction to Old English.
Mr. Creed, Ms. Duckert, Mr. Aho

703 Middle English
The language and documents representing the chief dialects. Mr. Creed

705 Old English Literature
Reading of various Old English works, stressing Beowulf. Prerequisite, English 702 or equivalent.
Mr. Creed, Ms. Duckert

706 Middle English Literature
Representative poems, verse plays, and selected prose, exclusive of Chaucer. Prerequisite, English 703 or equivalent.
Ms. Diamond, Mr. DiMarco

708 Chaucer
Chaucer's *Canterbury Tales* and the critical problems implicit in his works.
Mr. DiMarco, Mr. Gallo

709 The Works of Chaucer's French and Italian Periods
The complaints, the dream-visions, the later short poems, *Boethius,* and *Troilus* as combinations of medieval art and thought with pre-Renaissance motifs. Mr. Gallo

710 Historical Studies in the Language of Literature
The linguistic milieu in which monuments of British and American literature were created. Emphasis on matters critical to accurate reading, *e.g.,* semantic shifts, changes in syntax and rhyme, regional and social variations. Examination of selected works according to interests of the class.
Ms. Duckert

712 The Teaching of Writing
The methods, theories, and techniques of teaching prose composition.
Mr. Gibson, Mr. Moran, Mr. Smith, Mr. Skerrett

713 Studies in Film
The uses of film in an English Department. The application of film terminology, theory, and aesthetics. The rhetorical elements of film and their relationship to other forms of communication. The relationship of film to print literature. Procedures for setting up film-related courses, obtaining films, and teaching film as film and as an extension of traditional literature. Prerequisite, teacher of Rhetoric 180 or permission of instructor.
Mr. Eidsvik, Mr. Shadoian

718 The English Literary Profession
An introduction to the professional standards, aims, and procedures of scholarship and criticism. Mr. Kinney

721 The Development of the English Novel
Readings in the English novel to the late 19th century, from Richardson to Conrad, with attention to some ten representative novels. Mr. Golden, Mr. Page, Ms. Wolff

730 Literature of the 16th Century
Christian and Humanist ideals reflected in the poetry of Skelton, Wyatt, Surrey, Sackville, Raleigh, Sidney, and Spenser. Mr. Cheney, Mr. French, Mr. Kinney, Mr. Spivack

731 The English Bible as Literature
The several main genres of Biblical literature in their historical setting. Principles in interpretation; the literary influence of the Authorized Version. Mr. Collins, Mr. Freeman

732 Shakespeare
Close examination of Shakespearian plays representing the characteristics of his dramatic art. Mr. Berlin, Mr. Donohue, Mr. Farrell, Mr. Spivack, Ms. Spivack

734 Elizabethan and Jacobean Drama
Representative plays by Shakespea contemporaries, 1580-1642; emph on works by Marlowe, Jonson, Be mont and Fletcher, and Ford.
Mr. Berlin, Ms. Spiv

737 Literature of the 17th Century
Readings in 17th century prose a poetry from Donne to Marvell; anal of the more significant areas of thou and style. Ms. Beaty, Mr. Chen Mr. Collins, Mr. Frank, Mr. Freem Mr. French, Mr. Koehl Mr. Shado

738 Milton
The major and some of the mi works; related studies in Milton schol ship and criticism.
Ms. Beaty, Mr. Collins, Mr. Freem Mr. French, Mr. Koehler, Ms. Swa

740 Literature of the Restoration and 18th Century
Readings in English poetry and pr from Dryden to Burns, emphasizing major writers and including repres tative plays. Mr. Barron, Mr. Gold Mr. Leheny, Mr. Shaw, Mr. Sitt Mr. Smith, Mr. Weston, Ms. Wc

745 Literature of the Romantic Period
Readings in the major poetry, repres tative essays, and selected criti writings, including Blake, Coleridg Wordsworth, Keats, Shelley, Byr and Hazlitt. Mr. Ashton, Mr. Ba Mr. Brogan, Mr. Hav

746 Literature of the Victorian Age
Readings in the chief poets and p phets of the Victorian Age. Empha on Browning, Tennyson, Carlyle, Ne man, Mill, Ruskin, Arnold, and Pat Mr. Keefe, Mr. Noland, Ms. Raymor Mr. Silver, Mr. Wc

750 Early American Literature
The major writers and intellect movements in America during the 1 and 18th centuries.
Mr. Emerson, Mr. Lowar

753 American Romanticism
The development of American roma ticism under European influence, stre ing Cooper, Emerson, Thoreau, P Hawthorne, Whitman, and Melville. Ms. Culley, Mr. Emerson, Mr. Goz Mr. Kaplan, Mr. Matla Mr. McCarthy, Mr. Plumstea Mr. Robins

655 American Realism
The development of American realism from 1865 to 1914, stressing Twain, Henry James, Howells, and Henry Adams. Ms. Culley, Mr. Gozzi, Mr. Matlack, Mr. O'Donnell, Mr. Robinson, Mr. Turner

670 Contemporary Drama
British and American Drama from 1950 to the present. Mr. Rudin

671 Contemporary Fiction
British and American fiction from 1945 to the present. Mr. Chametzky, Mr. Clayton, Mr. Hicks, Mr. Moran, Mr. Nelson

672 Contemporary Poetry
British and American poetry from 1945 to the present. Mr. Koehler, Mr. Junkins, Mr. Langland, Mr. Tate, Mr. Tucker

674 Literary Criticism
Critical theory and practice with emphasis on the major philosophical critics beginning with Plato and Aristotle.
Mr. Clark

675 Modern Drama
Modern British, Irish, and American drama from 1890 to 1950. Emphasis on major figures: Shaw, Synge, O'Neill.
Mr. Aczel, Mr. Donohue, Ms. Hogan, Mr. Rudin

676 Modern Fiction
Intensive study of important works by Henry James, Joseph Conrad, James Joyce, D.H. Lawrence, William Faulkner and other masters of the modern novel between about 1900 and 1940. Mr. Chametzky, Mr. Clayton, Ms. Edwards, Mr. Hicks, Mr. Quick

677 Modern Poetry
The growth and development of modern poetry in English from 1912 to WWII, including Yeats, Stevens, Frost, Eliot, Pound, Williams; also Cummings, L. Hughes, Moore, Ransom, Auden, Crane, Robinson. Brief background materials out of Hopkins, Dickinson and Hardy.
Mr. Clark, Mr. Koehler, Mr. Langland, Mr. Mariani

680 Imaginative Writing: Poetry
Writer's workshop with emphasis on poetry. May be repeated by candidates for the M.F.A. for a total of 12 credits.
Mr. Junkins, Mr. Langland, Mr. Tucker

781 Imaginative Writing: Prose
Writer's workshop with emphasis on fiction. May be repeated by M.F.A. candidates for a total of 12 credits.
Mr. Aczel, Mr. Cuomo, Mr. Fetler, Mr. Neugeboren

790 Folklore
Folk narrative: tale, myth, and legend in relation to written literature.
Mr. Carey, Mr. Turner

899 (900) Doctoral Dissertation
Credit, 18.

Graduate Faculty

James B. Kring, *Professor and Head of the Department of Entomology,* B.S., Rockhurst College, 1947; M.S., Kansas State University, Manhattan, 1948; Ph.D., 1951.

Pedro Barbosa, *Assistant Professor and Graduate Program Director,* B.S., City College of New York, 1966; M.S., Massachusetts, 1969; Ph.D., 1971.

Larry K. Cole, *Assistant Professor,* B.A., University of Georgia, 1961; M.S., University of Utah, 1968; Ph.D., University of Georgia, 1974.

John D. Edman, *Associate Professor,* B.S., Gustavus Adolphus College, 1959; M.S., Nebraska, 1961; Ph.D., Kansas State, 1964.

David N. Ferro, *Assistant Professor,* B.S., San Jose State University, 1969; M.S., Washington State University, 1973; Ph.D., 1975.

Adrian G. Gentile, *Adjunct Associate Professor,* Doctor of Agriculture, University of Naples, 1950; M.Sc., California, 1956; Ph.D., 1966.

John F. Hanson, *Professor,* B.S., Massachusetts, 1937; M.S., 1938; Ph.D., 1943.

John A. Naegele, *Professor and Associate Dean of the College of Food and Natural Resources,* B.S., Cornell, 1949; Ph.D., 1952.

T. Michael Peters, *Professor,* B.S., Long Beach State College, 1959; M.S., Minnesota, 1961; Ph.D., 1964.

Ronald J. Prokopy, *Associate Professor,* B.S., Cornell, 1957; Ph.D., 1964.

John G. Stoffolano, *Associate Professor,* B.S., New York at Oneonta, 1962; M.S., Cornell, 1967; Ph.D., Connecticut, 1970.

A candidate for the Master of Science degree in Entomology in addition to meeting the requirements of the Graduate School must ordinarily complete the course requirements of Entomology, 526, 655, 657, 681, 682 and related sciences or their equivalents as determined by the adviser, committee and the student. Continuous registration in at least one graduate seminar is required throughout the period of residence. A thesis is usually required, but in special cases course credits in the series, including at least three credits in Ent. 697 may be substituted.

Requirements for the Doctor of Philosophy degree include the course requirements for the M.S. degree, Ent. 511, 683, Intermediate Biometry, Organic Evolution and those established by the Graduate School and the student's committee.

All courses carry 3 credits unless otherwise specified.

511A,B Insect Behavior
The specific behaviors of insects, analyzed in view of current experimental research, and used to demonstrate various neurobiological principles. An optional 3-hour, 1-credit lab for an independent research project. Lab period also includes several informal sessions.
Credit, 3 (or 4) Mr. Stoffolano

526 General Entomology for Science Majors
The ways in which insects have solved the problems of maintenance, survival, reproduction, etc., and how entomologists have applied this knowledge to controlling man's number one competitor for food. Other topics include: Insect evolution, insect behavior, ecology and systematics, plant and insect interactions, and economic entomology. Laboratory work with living insects. Three class hours, 3 hour laboratory periods. Prerequisite, knowledge of basic biological principles. Mr. Stoffolano
Credit, 4.

572 Forest and Shade Tree Insects
The ecology, biology and control of insects which attack shade trees, forests and forest products. A brief introduction to insects; special attention to the more important forest and shade tree insects. Two class hours, 2 hour laboratory periods. Mr. Barbosa
Credit, 4.

574A,B Medical Entomology
Relationships of insects and their allies to the health of man. The classification, biology, and control of these pests. The direct injury caused and the epidemiology of the diseases they vector. Three class hours, an optional 3-hour, 1-credit laboratory. Prerequisite, Ent 526/226 desirable. Mr. Edman

580 Insect Control
The science of pest control. Biological control and the use, economics, effectiveness, and hazards from insecticides. Prerequisite, Ent 526/226 desirable.

655 Systematic Entomology
An introduction to systematics: the identification of insects (primarily adult forms), the current taxonomic procedures and principles of classification, and an analysis of modern systematic theory. An extensive insect collection is required. Prerequisite, permission of instructor. Ent 526 desirable.
Credit, 4. Mr. Peters

657 Comparative Insect Morphology
The structure and function of representative insects. Two 3-hour lecture-laboratory periods. Prerequisite, Ent 226/526.
Credit, 4.

681 Insect Pest Management
Application of the principles of insect pest management. Emphasis on model pest systems, properties of available controls and their underlying ecological and behavioral principles. Prerequisites, Ent 526/226, or permission of instructor. Mr. Prokopy

682 Insect Physiology
The growth, development and function of insects. Topics include the nervous, sensory, respiratory, circulatory, digestive, excretory and endocrine systems. Prerequisites, Ent 226/526, Biochem 420 and 421. Three class hours, 4-hour lab.
Credit, 4.

683A,B Insect Ecology
Detailed evaluation of major concepts of ecology. Emphasis on their significance to insects. Prerequisites, Animal Ecology. Three class hours, optional 1 credit laboratory. Mr. Barbosa
Credit, 3 or 4.

697 Special Problems
Research on various problems and issues in Entomology, contracted with individual faculty members.
Credit, 1-6 per semester.

699 Master's Thesis
Credit, 10.

721 Toxicology of Insecticides
The chemistry, mode of action, and metabolism of insecticides in insect and vertebrate systems. Topics include persistence, biological magnification, effects on non-target organisms, selective toxicity, and resistance.

723 Advanced Biological Control
Principles of the practical application of biological control of insects and weeds. Theoretical and controversial issues in strategies of biological control. Prerequisite, Ent 580 or 681 or permission of instructor. Mr. Barbosa

750 Advanced Medical Entomology
Detailed studies of insects as parasites of vertebrates. Techniques used in vector biology investigations. Prerequisite, Ent 574B (with lab) or equivalent. One class hour, two 2-hour laboratory sessions. Mr. Edman

791, 792 (I) (II) Seminar
Topics in Entomology (with varying formats). Required of all Entomology majors each semester.
Credit, 1.

899 Doctoral Dissertation
Credit, 18.

Environmental Engineering

Graduate Faculty

(see under Civil and Chemical Engineering and Public Health for degrees, institutions, and years.)

Donald Dean Adrian, *Professor of Civil Engineering and Director of the Environmental Engineering Program.*

William A. Nash, *Professor of Civil Engineering and Graduate Program Director.*

Bernard B. Berger, *Professor Emeritus of Civil Engineering and Public Health.*

Francis A. DiGiano, *Associate Professor of Civil Engineering.*

Tsuan H. Feng, *Professor of Civil Engineering and Agricultural Engineering.*

Daniel I. Hillel, *Adjunct Professor of Civil Engineering.*

Enrique J. LaMotta, *Assistant Professor of Civil Engineering.*

W. Ernest Lindsey, *Professor Emeritus of Chemical Engineering.*

James W. Male, *Associate Professor of Civil Engineering.*

Howard A. Peters, *Associate Professor of Public Health and Civil Engineering.*

The Environmental Engineering Program offers both M.S. and Ph.D. degrees. The overall objective of the Program is to prepare students for careers in engineering related to development of a better environment. This requires an understanding of water, air, and solid-waste treatment and disposal inasmuch as the processing of waste in one medium usually results in transfer of a by-product to one or both of the other media.

REQUIREMENTS FOR THE MASTER'S DEGREE

Two optional M.S. degrees are offered through the Environmental Engineering Program, Master of Science in Environmental Engineering and Master of Science in Civil Engineering. All students who have been accepted in the Program may pursue the former, whereas the latter can only be awarded to students with a bachelor's degree in civil engineering.

In addition to the general Graduate School requirements for the M.S. degree, a minimum of 31 graduate credits must be earned by all degree candidates.

All students in the Program must attain a satisfactory level of proficiency for the practice of professional engineering, as established by the Engineer's Council for Professional Development (ECPD). The number of courses that each student will take will depend on his or her background, as explained below.

STUDENTS WITH ENGINEERING BACCALAUREATE

The course requirements for students with a bachelor's degree in engineering from an ECPD accredited program are the following:

Core Courses
The core courses are intended to provide students with a basic technical foundation for more advanced environmental engineering work as well as an understanding of institutions and policies common to the control of water quality and land usage. These required courses are: CE565, CE570, CE572, and CE691 or CE692.

Engineering Design Courses
As a minimum, nine graduate credits in engineering design must be earned. Design courses are usually selected from the following list: ChE571, CE561, CE562, CE569, CE571, CE576, CE770, CE771, CE772, and CE774.

Most of the engineering design courses have CE370 *Basic Environmental Engineering,* or CE360 *Hydraulics,* or both, as prerequisites. Students who have not taken the equivalent courses in their undergraduate engineering training must take the needed prerequisites.

Electives
In addition to the requirements described above, electives can be taken in areas relevant to the student's professional objectives. Students are encouraged to take their electives in other departments; however, no more than 9 graduate credits can be taken outside the Civil Engineering Department.

A Thesis (CE699, 6 credits) or a Master's Project (CE697, 3 credits)

Students with Non-engineering Baccalaureate
To be awarded the degree of Master of Science in Environmental Engineering the student must satisfy, through previous or present undergraduate and graduate work, the following requirements:

Mathematics (At least 15 credits beyond trigonometry)
The sequence of courses normally taken by students in the Program include Math 131 *Calculus I* (4 credits), Math 132 *Calculus II* (4 credits), Math 233 *Multivariable Calculus* (3 credits), Math 431 *Differential Equation* (3 credits) and one additional mathematics or statistics course.

Basic Sciences (At least 15 credits)
Basic sciences are considered to include physics, chemistry, and selected subjects from the life sciences and earth sciences.

Engineering Sciences (At least 30 credits)
This requirement is usually satisfied by taking courses in several of the departments of the School of Engineering. The following is a partial list of the undergraduate courses that fall in this category: CE201 *Surveying,* CE 240 *Statics,* CE 241 *Strength of Materials,* CE 342 *Dynamics,* CE 420 *Soil Mechanics,* CE 357 *Elementary Fluid Mechanics,* CE 286 *Engineering Graphics,* ChE 225 Fundamentals, ChE 226 *Chemical Engineering Theormodynamics,* ChE 356 *Chemical Engineering Heat Transfer,* ChE 357 *Mass Transfer,* IE/OR 454 *Industrial Engineering Economics II,* ECE 361 *Electrical Engineering,* COINS 122, *Introduction to Problem Solving Using the Computer*

Engineering Design (At least 25 credits)
This requirement is usually satisfied by taking undergraduate and graduate courses in the environmental engineering area. However, the student may select engineering design courses in other areas depending on his or her professional objectives. A minimum of 9 graduate credits of engineering design courses must be completed in the environmental engineering area.

Engineering design course include CE 360 *Hydraulics,* CE 370 *Basic Environmental Engineering,* CE 561 *Open Channel Flow,* CE 562 *Water Resources Engineering,* CE 569 *Water Supply and Wastewater Collection,* CE 571 *Industrial Waste Treatment* CE 576 *Solid Wastes,* CE 770 *Environmental Engineering Design,* CE 771 *Unit Processes of Environmental Engineering,* CE 774 Advanced Waste Treatment, ChE 571 *Air Pollution Control Practices.*

Electives
In addition to the requirements described in the preceding sections, the student must take sufficient number of elective courses to complete a total of at least thirty-one graduate credits. No more than nine graduate credits can be taken outside the Civil Engineering Department.

A Thesis (CE 669, 6 credits) or a Master's Project (CE 697, 3 credits)

Exercise Science

REQUIREMENTS FOR THE PH.D. DEGREE

Students with a deeper academic interest in environmental engineering may pursue the Ph.D. degree. Before being admitted the Ph.D. program the student normally must hold an M.S. degree in environmental engineering which meets all the requirements previously described. In addition to the doctoral degree requirements of the Graduate School concerning admission, residence, dissertation, and exams, the Environmental Engineering Program usually requires at least 24 credits of approved graduate level course work beyond the minimum degree requirements for the M.S. degree in Environmental Engineering (or equivalent degree). Twelve of these credits must be earned in a minor area approved by the student's adviser. There is no specific language requirement.

Graduate Faculty

David C. Bischoff, *Professor of Physical Education, and Dean of the School of Physical Education,* B.S., Pennsylvania State, 1952; M.Ed., North Carolina, 1953; Ph.D., Pennsylvania State, 1958.

Harry K. Campney, Jr., *Professor,* B.S., Pittsburgh, 1952; M.S., Illinois, 1953; Ph.D., Iowa, 1960.

Priscilla M. Clarkson, *Assistant Professor,* B.S., Massachusetts, 1969; M.S., 1973; Ph.D., 1977.

Robert J. James, *Associate Professor,* B.S., Springfield College, 1954; M.S., 1957; B.S., Connecticut, 1964; Ph.D., Wisconsin, 1974.; R.P.T., 1964.

Frank I. Katch, *Associate Professor, Chairman of the Department of Exercise Science and Graduate Program Director,* B.S., California State at Northridge, 1965; M.S., California at Santa Barbara, 1966; Ed.D., California at Berkeley, 1970.

Walter P. Kroll, *Professor,* B.S., Northern Illinois, 1952; M.S., Illinois, 1953; P.E.D., Indiana, 1959.

Thomas C. McBride, *Adjunct Professor,* A.B., Dartmouth, 1953; M.D., Vermont Medical School, 1957.

Stanley Plagenhoef, *Professor,* B.S., Michigan, 1949; M.S., 1951; Ph.D., 1962.

Benjamin Ricci, Jr., *Professor,* B.S., Springfield College, 1949; M.Ed., 1950; D.P.E., 1958.

The Department of Exercise Science (motor integration, biomechanics, exercise biochemistry, exercise physiology, and sensorimotor dysfunction) offers programs of study leading to a Master of Science degree in Physical Education and a Doctor of Philosophy degree in Human Movement. The degree programs in Exercise Science prepare a candidate to study and apply exercise from a multidisciplinary approach.

Candidates for the M.S. and Ph.D. degrees are accepted for admission under the general regulations of the Graduate School. In addition, M.S. candidates are required to have completed courses in exercise physiology, human anatomy and kinesiology. Ph.D. candidates are required to have had one semester each of organic chemistry, physics, statistics, and computer programming, as well as exercise physiology, anatomy, and kinesiology. Remedial work may be taken during the first year of study.

The degree requirements include 31 gra uate credits for the M.S. degree and appro imately 72 graduate credits for the Ph.D. d gree. In both degree programs the majori of these credits are earned in exercise scien courses. The credits earned in the depar ment come from both required and electi courses in both degree programs.

All courses carry 3 credits unless otherwi specified.

500 Physical Activity and Mental Retardation
Physical activity relative to the behavi of the mentally retarded. Prerequisit Ex Sci 259. Mr. Jam

531 Mechanical Analysis of Human Motion
Application of the principles of m chanics to the analysis of human m tion. Prerequisites, Ex Sci 204 and 20 Mr. Plagenho

542 Motor Integration
The control of muscular activity by th nervous system. Topics include bas motor-system reflexes, cross transfe fatigue, kinesthetic sense, lateral dom inance, and neuromuscular facilitatio techniques. Prerequisites, Ex Sci 20 205, 278, and Zool 135. Mr. Kro

543 Theory of Therapeutic Exercise
Theory of therapeutic exercise for th mentally retarded, physically handicap ped and normal. Prerequisite, Ex S 259. Mr. Jam

588 Biofeedback & Motor Function,
The theory and application of biofeed back techniques in sensorimotor fun tion. Prerequisites, Ex Sci 204, Zo 235. Mr. Jame

611 Introduction to Research in Human Movement
The nature of research; methods of a quiring knowledge; research and soci progress; general concepts concernin the scientific method. Mr. Kro *Credit, 1.*

612 Data Analysis and Interpretation in Human Movement Research
Theory and techniques involved in th analysis and interpretation of data pe tinent to research in human movemen Parametric and nonparametric infe ence statistics. Prerequisite, Stat 121. Mr. Campne

21 Physiological Basis of Human Performance
Analysis and interpretation of cardiovascular-pulmonary adjustment, metabolic requirement, and heat regulation during exercise. Prerequisite, Ex Sci 278. Mr. Ricci

22 Motor Integration Practicum
Theory and practice in laboratory analysis. Topics include nerve conduction, velocity, reflex latency, reaction time, and electromyographic analysis of local muscular fatigue as related to skilled and unskilled performance. Prerequisites, Ex Sci 204, 205, 278, 641, Zool 135. Mr. Kroll

99 Master's Thesis
Credit, 3-6.

632 Exercise-Physiology Instrumentation Theory
Instrumentation theory relative to the equipment utilized in estimating parameters in exercise physiology. Prerequisites, Zool 135, Ex Sci 278 and 621. Mr. Ricci

642 Biomechanics
Physical and biological considerations applied to the teaching of motor skills. Prerequisites, Ex Sci 204, 205, and 631. Mr. Plagenhoef

643 Measurement Theory and Human Movement Research
The theory of the construction of evaluative instruments in human movement. Emphasis on a critical examination of existing measurement devices. Prerequisites, Ex Sci 274 and 712. Mr. Campney

653 Experimental Physiology of Exercise
Experimental investigation of the physiological effects of exercise. Prerequisite, Ex Sci 621. Mr. Ricci

654 Tissue Respiratory Responses to Exercise
Tissue respiration in response to stress conditions. Emphasis on oxidative energy production. Prerequisite, Ex Sci 278.

655 Exercise Metabolism
The factors affecting human metabolism under exercise conditions. Emphasis on energy production and fiber types. Prerequisite, Ex Sci 278.

713 Forces and Moments of Force in Human Motion
The analysis of whole body muscle action during movement and impact. Prerequisite, Ex Sci 732. Mr. Plagenhoef

843 Neuromuscular Fatigue
Analysis of fatigue and recovery processes in gross human motor activity. Prerequisites, Ex Sci 621, 742, 813, and Stat 561. Mr. Kroll

844 Kinesthesia
Anatomical and functional analysis of the kinesthetic phenomena in gross human motor activity. Prerequisites, Ex Sci 641, Psych 511, and Stat 581. Mr. Kroll

891 Seminar in Human Movement
Topics in human movement not covered in other courses.
Credit, 1 per semester; Maximum credit, 6.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Joe T. Clayton, *Professor, Head of the Department of Food and Agricultural Engineering, and Graduate Program Director,* B.S.A.E., Tennessee, 1949; M.S., Illinois, 1951; Ph.D., Cornell, 1962.

Tsuan H. Feng, *Professor of Civil Engineering*

Curtis A. Johnson, *Associate Professor,* B.S.A.E., Nebraska, 1940; M.S., Iowa State, 1955.

Ernest A. Johnson, *Associate Professor,* B.S., Massachusetts, 1953; M.S., Purdue, 1959.

Robert G. Light, *Professor,* B.S., Maine, 1953; M.S., Pennsylvania State, 1958.

Richard E. Mudgett, *Associate Professor,* B.S.E.E., Northeastern, 1952; B.B.A., 1954; M.S., Massachusetts, 1969; Ph.D., 1974, Massachusetts Institute of Technology.

John S. Norton, *Associate Professor,* B.S., Pennsylvania State, 1948; M.S., Louisiana State, 1950.

Micha Peleg, *Assistant Professor,* B.Sc., The Technion, Israel, 1963; M.Sc., 1967; D.Sc., 1971.

ChoKyun Rha, *Adjunct Associate Professor,* B.S., Massachusetts Institute of Technology, 1962; M.S., 1964; M.S.Ch.E., 1966; Ph.D., 1967.

John R. Rosenau, *Associate Professor,* B.S.A., Wisconsin, 1965; B.S.M.E., 1966; Ph.D., Michigan State, 1970.

Henry G. Schwartzberg, *Professor,* B.Ch.E., Cooper Union, 1949; M.Ch.E., New York University, 1959; Ph.D., 1966.

Lester F. Whitney, *Professor,* B.S., Maine, 1949; M.S., Michigan State, 1951; Ph.D., 1963.

Master of Science and Doctor of Philosophy programs in Food and Agricultural Engineering involve studies of the engineering aspects of the production, preservation, storage, processing, and distribution of food. Academic backgrounds, as well as programs of study, may differ markedly depending upon the aims of the student and the area of emphasis he or she selects. Students working in any emphasis-area must have a background in the physical and engineering sciences and have, or be prepared to acquire, a basic knowledge of the biological sciences.

Requirements for both the M.S. and Ph.D. degrees include courses offered by the Department of Food and Agricultural Engineering and courses in supporting areas, such as food science, mechanical, chemical, and civil engineering; mathematics; and the biological and microbiological sciences. A typical Ph.D. program includes approximately one-third major department offerings, one-third course work in supporting areas, and one-third dissertation. The department imposes no foreign language requirements for the doctoral degree.

All courses carry 3 credits unless otherwise specified.

531 Instrumentation in Food and Agricultural Engineering
Instrumentation applied to research, covering recorders, indicators, controllers and transducers in general. Emphasis on applications and limitations. Prerequisite, permission of instructor.

555 Aquacultural Engineering Systems
Rate theory and similitude in the scale-up of biological processes. Case study of biological data used in the derivation of useful engineering systems design relationships for the culture of mollusks.

565 Physiological Unit Operations
Introduction to physiological systems, studies of thermodynamics, fluid dynamics, heat transfer and mass transfer to biological systems, concepts in biological regulatory systems and biological engineering design with specific examples.

575 Food Processing Systems Analysis
Continuous and batch processing systems for food and biological products. Flow analysis; systems analysis, scale-up, and simulation techniques. Machine operating principles, sanitary requirements, fabrication limitation and machine interactions. Prerequisite, permission of instructor.

576 Advanced Food-Machinery Design
Food machinery component design problems. The interrelation of the physical properties of biological material, with problems related to the food industry. A design problem is required of each student. Prerequisite, permission of the department, or Mech Eng 283 and Math 285 or equivalents.

581 Elements of Food Unit Operations
The fundamental engineering principles involved in the processing of biological materials. Emphasis on heat transfer, mass and energy balances, refrigeration, psychrometry, properties of fluids and fluid flow.

584 Applications of Food Engineering
Application of engineering concepts to the processing and handling of biological materials, including evaporation, dehydration, irradiation, freeze drying, cost analysis, materials handling, manual motion, economy, and packaging.

697 Special Problems in Food and Agricultural Engineering
Current topics pertinent to students' interests and departmental goals. Includes analysis, experimentation, and/or literature review. The special problem culminates with an unbound written report, often of publishable quality.
Credit, 1-6.

699 Master's Thesis
Credit, 4-8.

740 Physical Properties of Biological Materials
The physical characteristics and mechanical, rheological, thermal, electrical, and optical properties of biological materials. Emphasis on the application of fundamental concepts of behavior in storage, processing, quality-evaluation and manipulation. 2 class hours, one 2-hour laboratory period. Prerequisite, permission of instructor.

756 Engineering Analysis of Biological Systems
Methods of mathematical modeling as a supplement to laboratory experiments. Analysis of biological problems in an engineering context, and the physical and mathematical interpretation of the results. Prerequisite, Math 585 or approval of department.

760 Physical and Physiological Relationships in Animal Environments
(In cooperation with Department of Veterinary and Animal Sciences.) Functional environment constrasted to the generalized environment. The action of the environment on the animal and the reaction of the animal on the environment in terms of several parameters. Prerequisite, permission of instructor.

766 Control of Heat and Vapor Flow in Buildings and Processes
Application of mass flow theory to heat and vapor transfer. Thermal and gaseous interchange between animals and biological products and their environments. The application of instruments and controls. Prerequis Mech Eng 582 or equivalent.

780 Biophysics in Agricultural Engineering
Properties of living systems in terms the concepts of physics and engineeri the biophysical concept of the liv cell; the theory of controlling regi and biological rate processes. Pre quisite, Food and Ag Eng 781.
Credit, 4.

781 Biological Process Engineering
Engineering analysis of thermal proce ing, ionizing radiation processing, crowave processing, other physical a chemical sterilization processes, a combined process sterilization. P requisite, Food and Ag Eng 581.

786 Advanced Process Engineering
Engineering analyses of fermentati recovery processes, enzyme technolo membrane technology, waste processi and utilization.

791 Seminar
Research methods in Food and Agric tural Engineering.
Credit, 1.

792 Seminar
Research accomplishments in Food a Agricultural Engineering.
Credit, 1.

891 Professional Topics in Food and Agricultural Engineering
Credit, 1 each semester. Maximum credit, 2.

892 Technical Topics in Food and Agricultural Engineering
Credit, 1 each semester. Maximum credit, 2.

899 Doctoral Dissertation.
Credit, 18.

Food and Resource Economics

Graduate Faculty

ohn H. Foster, *Professor and Chairman f the Department of Food and Resource conomics,* B.S., Cornell, 1950; M.S., Purue, 1951; Ph.D., Cornell, 1957.

. Geoffrey Allen, *Assistant Professor and raduate Program Director,* B.Sc., Notngham, 1967; M.S., California, 1969; h.D., 1972.

obert L. Christensen, *Professor,* B.S., lichigan State, 1958; M.S., Delaware, 960; Ph.D., North Carolina State, 1967.

radford D. Crossmon, *Professor,* B.S., onnecticut, 1937; M.S., 1943; M.P.A., arvard, 1949; D.P.A., 1963.

. Eugene Engel, *Professor and Director f Office of Policy Analysis,* B.S., ebraska, 1954; M.S., Connecticut, 1959; h.D., 1967.

arry C. Field, *Assistant Professor,* B.S., ornell, 1956; M.S., 1959; Ph.D., Califor-a, 1967.

dward K. Knapp, *Associate Professor,* .S., Cornell, 1950; M.S. (Ed.), 1951; h.D., Michigan State, 1969.

heodore W. Leed, *Professor,* B.S., Ohio ate, 1950; M.S., 1951; Ph.D., 1957.

onald R. Marion, *Associate Professor,* .S., Cornell, 1954; M.S., 1955; Ph.D., assachusetts, 1971.

orzuch, Bernard J., *Assistant Professor,* .A., Procopius College, 1970; M.B.A., outhern Illinois, 1972; Ph.D., Missouri, 977.

eorge R. McDowell, *Assistant Professor,* .S., Rhode Island, 1961; M.S., Cornell, 963; Ph.D., Michigan State, 1975.

rian R. Payne, *Adjunct Assistant Proessor of Food and Resource Economics nd Adjunct Assistant Professor of orestry.*

homas H. Stevens, *Assistant Professor,* .S., Cornell, 1966; M.S., Delaware, 1968; h.D., Cornell, 1972.

avid A. Storey, *Professor,* B.S., assachusetts, 1954; M.S., Purdue, 1958; h.D., 1960.

eve E. Willis, *Associate Professor,* B.A., hico State, 1965; M.S., California, 1967; h.D., 1972.

The Department offers both the Ph.D. and the M.S. degrees. The primary objective of the graduate program in Food and Resource Economics is the education of applied economists to meet the needs of contemporary society in the United States and other countries. Fields of interest included in the Department's program are: 1) Natural Resource and Environmental Economics, 2) International Agricultural Development Economics, and 3) Food Production and Marketing Economics.

The doctoral degree requirements of the Graduate School apply to the Ph.D. program. The student's program of study will be developed in accordance with his or her individual objectives and the required level of competence in economic theory and quantiative analytical methods established by the Department. The Ph.D. student is required to demonstrate research competency by completing an acceptable Ph.D. dissertation. No foreign language competency is required.

The general requirements established by the Graduate School also apply to the M.S. degree program. The M.S. degree candidate will earn from 6 to 9 credits in "experience activities" which include the alternatives of a 9-credit thesis or a 6- to 9-credit special problem in research, teaching, extension, or administration. No foreign language competency is required.

All courses carry 3 credits unless otherwise specified.

632 International Agricultural Development
Economic development of low income rural economics. Relation of agriculture to national economies. Exogenous and endogenous factors in agricultural development. Mr. Foster

696 Independent Study in Food and Resource Economics
Independent study and research on selected problems in food and resource economics.
Credit, 1-9

699 Master's Thesis
Credit, 3-9.

701 Quantitative Methods
Application of micro-econometric techniques in agricultural, food, and resource economics. Emphasis on practical applications of modern methods of quantitative analysis to problems of the firm. Linear programming, transportation frameworks, and network flows.
Mr. Willis

702 Econometric Methods
Introduction to econometric methods: the general linear model, nonspherical properties, generalized least squares, and estimation of systems of equations.
Mr. Willis

703 Special Topics in Econometrics and Quantitative Analysis
Seminars in non-linear and integer programming, statistical decision theory, recursive systems and causal ordering, dynamic econometric models, and other current topics. Mr. Willis

711 Advanced Agricultural Economics
Theory of the firm as it applies to agricultural production, including: production functions and cost functions. Optimizing decisions for both firm and consumers. Derivation of demand functions, analysis of market equilibrium and survey of production under imperfectly competitive conditions.
Mr. Allen

712 Topics in Dynamic Microeconomic Theory
An analysis of the problems of resource allocation over time with specific reference to applications in agricultural and resource economics. Topics include the theory of the firm with a multi-period production function and theory of the consumer with an intertemporal utility function. Advanced methods of dynamic optimization including deterministic, stochastic, and adaptive control.

721 Economics of Natural Resources
Economic models of natural resource use with emphasis on extractive resources; analysis of the role of natural resources in aggregate economic performance and in specific industries; dynamic characteristics of natural resource programs. Mr. Field

722 Economics of Natural Environments
Application of welfare economics to natural resource policies; economic analysis of environmental degradation and public policy; analysis of irreversible natural resource uses and decisions for preservation of unique resources.
Mr. Conrad, Mr. Field

Food Science and Nutrition

733 Advanced Farm Management
Seminar in applied topics in farm management and production economics. Readings focus on philosophy, methods and issues in farm management research and extension work. A case analysis of an actual farm situation. Open to students from other departments. Mr. Christensen

899 (900) Doctoral Dissertation
Credit, 18.

Graduate Faculty

Kirby M. Hayes, *Professor and Acting Head of the Department of Food Science and Nutrition.* B.S., Massachusetts, 1947; M.S., 1948.

Frank E. Potter, *Associate Professor and Graduate Program Director,* B.S., Maine, 1942; M.S., Maryland, 1948; Ph.D., Pennsylvania State, 1955.

Mokhtar T. Atallah, *Assistant Professor,* B.S., University of Cairo, 1960; M.S., Washington State, 1968; Ph.D., 1973.

Virginia A. Beal, *Associate Professor,* B.S., Simmons College, 1939; M.P.H., Harvard School of Public Health, 1945.

Mark H. Bert, *Associate Professor,* B.S. Lima University, Peru, 1939; M.S., Illinois, 1948; Ph.D., 1955.

Ernest M. Buck, *Professor,* B.S., Connecticut, 1955; M.S., North Carolina State, 1957; Ph.D., Massachusetts, 1966.

Fergus M. Clydesdale, *Professor,* B.A., Toronto, 1960; M.S, 1962; Ph.D., Massachusetts, 1966.

David A. Evans, *Associate Professor,* B.S., Pennsylvania State, 1953; M.S., 1955; Ph.D., Massachusetts, 1968.

Irving S. Fagerson, *Professor,* B.S., Massachusetts Institute of Technology, 1942; M.S., Massachusetts, 1948; Ph.D., 1950.

Frederick J. Francis, *Professor,* B.A., Toronto, 1946; M.S., 1948; Ph.D., Massachusetts, 1954.

Herbert O. Hultin, *Professor,* B.S., Massachusetts Institute of Technology, 1956; M.S., 1956; Ph.D., 1959.

Ward M. Hunting, *Associate Professor,* B.S., Houghton College, 1947; M.S., Massachusetts, 1949; Ph.D., 1963.

Ronald G. Labbe, *Assistant Professor,* B.A., University of New Hampshire, 1968; M.S., University of Wisconsin, 1970; Ph.D., 1976.

Robert E. Levin, *Professor,* B.S., Los Angeles State, 1952; M.S., Southern California, 1954; Ph.D, California, 1963.

Raymond R. Mahoney, *Assistant Professor,* B.Sc., University of Reading, 1967; M.S., California at Davis, 1968; Ph.D., 1976.

Wassef W. Nawar, *Professor,* B.S., University of Cairo, 1947; M.S., 1950; Ph.D., Illinois, 1960.

Peter L. Pellett, *Professor and Director of Nutrition Option,* B.S., Borough Polytechnic, London, 1952; Ph.D., Londo School of Hygiene and Tropical Medicine 1956.

Kenneth W. Samonds, *Associate Professo* B.S., Illinois, 1964; M.S., Arizona 1966; Ph.D., 1969.

F. Miles Sawyer, *Associate Professor,* B.S Massachusetts Institute of Technology, 19 M.S., California, 1951; Ph.D., 1958.

Institute of Agricultural and Industrial Microbiology

Warren Litsky, *Commonwealth Professor of Environmental Sciences and Director of Agricultural and Industrial Microbiology,* B.S., Clark, 1945; M.S., Massachusetts, 1948; Ph.D., Michigan State, 1951.

Robert A. Coler, *Assistant Professor,* B.A State University of New York, 1952; M.A., 1954; Ph.D., Syracuse, 1960.

Haim B. Gunner, *Associate Professor,* B.S., University of Toronto, 1946; M.S., University of Manitoba, 1948; Ph.D., Cornell, 1962.

Robert W. Walker, *Assistant Professor,* B.S., Massachusetts, 1955; M.S., 1959; Ph.D., Michigan State, 1963.

The department offers two options: food s ence, and nutrition. Industrial microbiolo is offered as an area of concentration for t Ph.D. degree in the Department of Fo Science and Nutrition in cooperation with t Institute of Agricultural and Industri Microbiology.

In addition to the research facilities on t Amherst Campus, students may do the research at the Marine Station in Glouceste where Dr. Hultin is located.

All general Graduate School requirements f admission and for the degree must be m with the following additional requirements:

1. All Ph.D. candidates will offer as minimum, 15 credits of department 700-level courses, three credits of semina and nine credits outside the department certain courses more advanced than tho recommended for undergraduate major
2. Competency in computer usage and pr graming is required of all Ph.D. ca didates.
3. The Department of Food Science an Nutrition requires no foreign langua competency for the doctoral degree.
4. Candidates for the M.S. degree may sele one of two options in order to fulfill th Graduate School requirements.

a. M.S. degree with thesis. Ten credits may be allowed for the thesis.
b. M.S. degree with research problem. Up to six credits may be allowed for the problem.

Candidates for the non-thesis M.S. degree must submit at least nine credits of departmental 700-courses and two credits of seminar. The non-thesis option is not open to candidates holding a departmental research assistantship.

OOD SCIENCE OPTION

raduate students who wish to major in food ience may not be admitted to candidacy r an advanced degree until such time as ie undergraduate requirements in basic sci- nces and department courses have been met ibstantially. Work in the area of dairy tech- ology is included in the offerings of the De- artment of Food Science and Nutrition.

UTRITION OPTION

he degree of Master of Science or Doctor of hilosophy may be earned in the Depart- ent by candidates who hold an accredited accalaureate degree in natural sciences ith emphasis on chemistry or biology or an credited baccalaureate in home economics ith a major in dietetics or nutrition and od. Other students must be prepared to medy undergraduate deficiencies without rning graduate credit.

he program for each candidate for the .S. degree is designed to meet the needs id interests of the student; it includes urse work in the major field and in a minor ea such as physiology, food science, ochemistry, public health or food onomics.

he program for each candidate for the n.D. degree is designed with sufficient flex- ility to meet the needs and interests of the udent; it includes course work in the major eld and in areas related to the major field, written preliminary comprehensive ex- nination and a dissertation.

l courses carry 3 credits unless otherwise ecified.

2 Nutritional Aspects of Food Processing
Effects of traditional and new methods of food processing, chemical additives and naturally occurring toxicants on the nutritional quality of food. Nutritional labelling and legal aspects. Prerequisites, FS&N (540) or permission of instructor. Mr. Atallah

504 Special Topics in World Food Technology
Selected problems in applications of food technology to solutions of world food problems in developing countries. Two class hours.
Credit, 2.

512 Experimental Foods
Fundamental principles of food quality evaluation, development of an independent research problem. One class hour, two 3-hour laboratory periods. Prerequisites, FS&N (251) or equivalent, Chem 160 or permission of instructor.

518 Advanced Methods of Computerization in Nutrition and Food Service
The mathematical foundations of computations with food nutrients and recipe data. The data file structure of computerized food and nutrient accounting systems. The principle of mathematical optimization techniques and its utilization in computerized menu planning and scheduling models. Laboratory work with computer applications. Prerequisites, FS&N (340/640), Mgt 110, Math 115 or equivalents.
Mr. Balintfy

524 Animal Products
Introduction to the processing, purchasing, handling and storage of meats and other protein foods. Two class hours, one 2-hour lecture-demonstration. Mr. Buck

541 Food Chemistry I
The chemistry of food products. Chemical, physical, and biological changes in foods at the cellular and molecular levels during storage and processing. Emphasizes water, cell structure, carbohydrates and lipids of foods. Prerequisite, Organic Chemistry or permission of instructor. Mr. Mahoney

542 Food Chemistry II
The chemistry of food products. Chemical, physical and biological changes in foods at the cellular and molecular levels during storage and processing. Emphasizes food proteins, enzymes, vitamins and flavor chemistry. May be taken separately from FS&N (652). Prerequisite, Organic Chemistry or permission of instructor. Mr. Nawar

552 Nutrition in the Life Cycle
Nutritional needs at various stages in the life cycle, *i.e.*, pregnancy and lactation, infancy, childhood, adolescence, adult life and the aged. Prerequisite, FS&N (240) or permission of instructor.
Ms. Beal

561 Food Processing
Basic principles and current technology of food processing. Blanching, thermal processing, freezing, concentration, drying and packaging. Mr. Potter

562 Food Processing Laboratory
Application and utilization of pilot plant equipment to illustrate principles and practice in the food industry. One class hour; one 4-hour laboratory period. Mr. Potter

565 Unit Operations
Technical principles involved in the handling and processing of milk and dairy products. Two class hours, one 2-hour laboratory period.

572 Community Nutrition
Community response through its agencies and institutions, public, private, and voluntary, in providing nutrition care, services and education. Prerequisite, FS&N (640) or permission of instructor. Ms. Wright

573 Community Nutrition
Supervised field experience for community nutrition majors. Prerequisite, FS&N (340/640), FS&N (342/642) and permission of instructor. Ms. Wright

577 Nutritional Problems of the United States
Examination of the factors within the United States resulting from and causing malnutrition. Will include obesity, coronary heart disease, diabetes, alcoholism, food fads and quackery, food additives and unintentional residues. Prerequisites, FS&N (340/640) or permission of instructor.
Ms. Beal, Mr. Pellett

578 Nutritional Problems of Developing Nations
Malnutrition as it exists in developing countries and its socioeconomic background. Protein-energy malnutrition, famine, vitamin and mineral deficiency diseases, synergism between nutrition and infection and the role of international agencies in fighting malnutrition. Prerequisites, FS&N (340/640) or permission of instructor. Mr. Pellett

579 Nutrition in Disease
Physiological basis for therapeutic diets in certain diseases. Current medical and nutrition literature used. Prerequisite, FS&N (340), Biochem (220), Zool (135) or permission of instructor.
Mr. Samonds

581 Analysis of Food Products
Physical, chemical, microbiological and microscopical methods. Two class hours, one 4-hour laboratory period. Prerequisite, analytical chemistry.
Mr. Hunting

582 Objective Analytical Methods and Instrumentation
Continuance of (671). Two class hours, one 4-hour laboratory period. Prerequisite, FS&N (671). Mr. Hunting

584 Sensory Evaluation Methods
An introduction to sensory measurements in the evaluation and acceptance of foods. Panel tests and their statistical interpretation; taste, odor, color, and texture measurements. Two class hours, one 2-hour laboratory period.
Mr. Sawyer

696 Research Problem
Mainly for candidates for the Master of Science degree who do not write a thesis. Original research expected. Two bound copies of a written report of the study are required by the Department.
Credit, 3-6.

698 Nutrition Practicum
Practical field experience in human nutrition. Prerequisite FSN (340) or permission of instructor. Mr. Pellett

699 Master's Thesis
Individual research.
Credit, 6-10.

706 Food Packaging
Characteristics of packaging materials as related to food product requirements. Evaluation, testing and case studies of current food packages and products. Field trips to selected food and packaging operations. Two class hours, one 3-hour laboratory period. Prerequisite, FS&N (661).
Mr. Hayes

713 Advanced Nutrition—Carbohydrates, Lipids and Energy
Metabolic role of carbohydrates and lipids as sources of energy. Energy production at the cellular level and consideration of whole body energy balance. Prerequisite, Biochem (520) or permission of instructor. Mr. Pellet, Mr. Samonds

714 Advanced Nutrition—Vitamins
Metabolic role of vitamins, specific functions, requirements, sources, assay methods, effects of deficiencies and excesses. Prerequisites, FS&N (703) or permission of instructor. Mr. Pellett, Mr. Samonds

715 Advanced Nutrition—Minerals
Metabolic role of minerals, specific functions, requirements, sources, assay methods, effects of deficiencies and excesses. Prerequisites, FS&N (703) or permission of instructor. Mr. Atallah

716 Proteins in Human Nutrition
Digestion absorption and metabolism of proteins and amino acids. Evaluation of protein value of foods and dietaries, protein malnutrition. Prerequisite, Biochem (520) or permission of instructor.
Mr. Pellet

722 Food and Industrial Fermentations
The genetics of industrial microorganisms, dairy fermentations, microbial production of protein, pesticides, nucleotides, beer, wine, vinegar, antibiotics, ergotine and amino acids. Prerequisites, general microbiology and biochemistry. Two class hours. Mr. Levin

723 Microbiology and Food Processing
Relationships of yeasts, molds, and bacteria to foods. Microbiology of refrigerated foods, mycotoxins, pectic enzymes. Characteristics and properties of organisms causing food infections and poisonings. Two class hours; one 3-hour laboratory period. Prerequisites, basic biochemistry and microbiology.
Mr. Levin

728 Thermobacteriology and Food Processing
Bacteria of importance in spoilage of canned foods. Bacterial contamination and its control. Thermal resistance of bacteria. Heat transfer in thermally processed foods. Calculation and evaluation of sterilization processes. Prerequisites, FS&N (809) and calculus.
Mr. Evans

741 Lipid Chemistry
Composition and chemical properties of edible fats and oils. Physical characteristics—plasticity, polymorphism, melting, solidification. Technology of industrial fats—extraction, refining, hydrogenation, inter-esterification. Deteri- ative reactions—oxidation, therm degradation. Biological significan New methods of analysis. Review of c rent literature. Two class hours, c 2-hour laboratory period. Prerequisi permission of instructor. Mr. Nav

742 Advanced Dairy Chemistry
The physical, colloidal and chemi properties of milk and dairy produc The role of milk fat, salts, proteins, c bohydrates and enzyme systems. Pre quisite, permission of instructor.
Mr. Pot

745 Food Biochemistry
Effects of storage and processing p cedures on factors such as cellu organization, membrane deteriorati post-mortem or post-harvest prote synthesis, and enzymic control in pla and animal tissues used as food.
Mr. Hul

761 Physical Phenomena in Foods
Origin and modification of surfa forces. Production and stability emulsions and foams. Properties of fo polymers in solution. Structure a formation of gels. Mr. Fagers

780 Colorimetry and Appearance
Color theory encompassing the physi and psychophysics of color matchi and measurement along with t physiology of vision. Development color solids and scales. Interpretation reflection and transmission data. Visu and instrumental characteristics of c or and appearance. Total of 20 lectu hours and 12 laboratory hours. Prer quisite, permission of instructor. N open to FS&N majors.
Credit, 2. Mr. Francis, Mr. Clydesda

Two class hours and one 3-ho laboratory. The extra lectures ar laboratory are devoted to color quali changes with emphasis on foods.
Credit, 3. Mr. Francis, Mr. Clydesda

781 Advanced Food Analysis
Instrumental methods. Infrared spe trophotometry, mass spectrometry, g and liquid chromatography. Theor techniques and applications. Two cla hours, one 2-hour laboratory perio Prerequisite, permission of instructor.
Mr. Fagerso

784 Pigments in Foods
Chemistry, analysis and processing im plications of the anthocyanins, flav

Forestry and Wood Technology

noids, chlorophylls, carotenoids, betacyanins, meat pigments, and nonenzymatic browning systems. Heavily weighted on chemistry but also includes interpretations in terms of appearance, nutritive value and general quality. Complements FS&N (850). Two class hours, one 3-hour laboratory period. Prerequisite, permission of instructor.
Mr. Clydesdale, Mr. Francis

5 Toxicology
Evaluation of methods used to determine safety of economically important chemicals. Mechanisms of drug disposition and drug metabolism. Discussion of regulatory toxicology. Prerequisite, permission of instructor.

3 Seminar
Readings, reports and discussions on the current literature in the area of Food or Nutrition.
Credit, 1 per semester; maximum credit, 3.

4 Seminar
Review of current literature and research. Visiting lecturers. One class hour.
Credit, 1.

6 Research Project
Research on problems not related to the thesis.
Credit, 1-4.

6 Research Project
Prerequisite, permission of graduate instructor. (Not thesis, for Ph.D. candidates only.)
Credit, 1-4.

9 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Donald R. Progulske, *Professor and Head of the Department of Forestry and Wildlife Management,* B.S., Massachusetts, 1950; M.S., Virginia Polytechnic Institute, 1952; Ph.D., Missouri, 1956.

Brayton F. Wilson, *Associate Professor of Forestry and Graduate Program Director in Forestry,* B.A., Harvard, 1955; M.F., 1957; Ph.D., California at Berkeley, 1961.

R. Bruce Hoadley, *Professor of Wood Technology and Graduate Program Director in Wood Technology,* B.S., Connecticut, 1955; M.F., Yale, 1957; D.F., 1962.

Carl A. Carlozzi, *Associate Professor of Resource Planning,* B.S., Kent State, 1955; M.A., 1957; Ph.D., Michigan, 1965.

William P. MacConnell, *Professor of Forestry,* B.S., Massachusetts, 1943; M.F., Yale, 1948.

Donald L. Mader, *Professor of Forestry,* B.S., State University of N.Y., 1950; M.S., Wisconsin, 1954; Ph.D., 1956.

Alan A. Marra, *Professor of Wood Technology,* B.S., State University of N.Y., 1940; M.S., 1942; Ph.D., University of Michigan, 1955.

Joseph C. Mawson, *Assistant Professor of Forestry,* B.S., Maine, 1956; M.F., Duke, 1958; M.A., California at Berkeley, 1966.

Richard J. Meier, *Assistant Professor of Forestry,* B.S., Michigan Technological University, 1963; M.S., Illinois, 1971; Ph.D., Auburn, 1976.

Thomas A. More, *Adjunct Associate Professor of Forestry,* B.S., Massachusetts, 1968; M.S., 1970; Ph.D., University of Michigan, 1973.

John H. Noyes, *Professor of Forestry,* B.S., Connecticut, 1937; M.F., Yale, 1939.

Brian Payne, *Adjunct Associate Professor of Forestry,* B.S., California at Berkeley, 1961; M.F., Duke, 1962; Ph.D., California at Berkeley, 1969.

William W. Rice, *Associate Professor of Wood Technology,* B.S., Maine, 1948; M.F., Yale, 1949; D.F., Duke, 1964.

Degrees offered are the Master of Science and the Doctor of Philosophy. An applicant's undergraduate preparation preferably should have focused on forestry, wood science and technology, engineering, planning, or a closely related field in natural resource management, conservation or natural science. Students with other backgrounds may be accepted. A reading knowledge of a foreign language sufficient to understand journal material may be required of doctoral students.

For the Forestry Program, areas of specialization include soils, ecology, physiology, silviculture, management, economics, hydrology, planning and mensuration. Prerequisites for entry to the program are two semesters of calculus, two semesters of chemistry and one semester of botany. Courses in statistics, geology and economics are recommended. Requirements for the Master of Science degree in Forestry include a thesis and completion of courses to meet the minimum U.S. Forest Service employment requirements.

For the Wood Technology Program, specialities include wood science and technology, product development and processing, operations research and marketing, with emphasis on structural elements, components and systems for housing. There are no set course prerequisites for entry to the program. Students with non-technical backgrounds may be allowed to select a non-thesis option for the Master of Science degree.

All courses carry 3 credits unless otherwise specified.

527 Tree Physiology
Growth and development during the life cycle of trees, emphasizing the whole-plant approach and phenomena best studied in trees; the physiological basis of silviculture. Prerequisite, Botany 211 or equivalent. Mr. Wilson

528 Forest Hydrology
Principles and factors controlling the hydrological cycle on forest lands. Review of forest watershed management research on the influence of soils, vegetation, and management practices on water yields and water quality. Watershed management as a part of integrated forest land management.
Mr. Mader

601 Research Concepts in Forest Biology
Introduction to the scientific method and specific problems in forest biology research. Preparation of research proposal and publications. Mr. Wilson

602 Ecological Principles in Resource Planning
Analysis of ecological principles and their relationship and importance to resource planning. State and federal

conservation programs chosen for critical case study. Prerequisite, permission of instructor. Mr. Carlozzi

603 Aerial Photo-Interpretation
Advanced aerial photo-interpretation emphasizing the analysis of natural vegetation and land use in natural resource studies and planning. Prerequisite, For 431 or equivalent. Mr. MacConnell

604 Advanced Silviculture
Growth and reproductive characteristics and requirements of trees and forest stands as they affect silvicultural management, particularly in relation to thinning and the establishment of forest regeneration. Prerequisites, For 323, 324, and 426, or equivalents. Mr. Abbott

608 Microeconomics of Forestry I
Principles of microeconomics as applied to forestry problems with emphasis on marginal analysis in regard to land, labor, and capital. Prerequisite, For 335 or equivalent.

695 Special Project
Selected research problem in forestry not related to the candidate's thesis.
Credit, 2-4.

699 Master's Thesis
Credit, 6-10

701 Advanced Forest Soils
The relation of soils to tree growth and other environmental factors with emphasis on research methods, site-evaluation, water relationships, and fertility; laboratory and field exercises. Prerequisite, For 324 or equivalent. Mr. Mader

703 Advanced Forest Ecology
Methods for describing and analyzing forest ecosystem structure; effects of environmental factors on forest ecosystems; forest ecosystem processes and development. Prerequisite, For 323 or equivalent.

706 Advanced Forest Mensuration
Regression analysis applied to stand and tree volume determination, stand growth and yield, forest site evaluation, and related measurement problems. Computer techniques used to solve some of the problems. Prerequisite, For 225 and 334, or equivalents. Mr. Mawson

707 Advanced Forest Management
Economic evaluation of forest enterprises; appraisal of rates of return, damage, and stumpage values. Prerequisite, For 440 or equivalent. Mr. MacConnell

709 Microeconomics of Forestry II
An examination of models and simulation techniques employed in forest resource use decision-making.

791 Seminar
Specialized study in a selected area of forestry.
Credit, 1-3.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Micheline Dufau, *Professor of French a Chairman of the Department of French and Italian,* B.-ès-L., Paris, 1945; B.S., New York University, 1951; Ph.D., 1960

Christian Garaud, *Associate Professor, and Graduate Program Director,* B.-ès-L Poitiers, 1954; L.-ès-L., 1958; D. de 3e c cle, 1961 (in Classics); D. de 3e cycle, 19 (in French).

John P. Berwald, *Associate Professor an Director of the M.A.T. Program in French,* B.A., Michigan, 1956; M.A., M dlebury, 1964; Ph.D., Ohio State, 1971.

Jeannette D. Bragger, *Assistant Professo* B.A., California at Santa Barbara, 1966; M.A., 1968; Ph.D., 1971.

Beatrice Braude, *Assistant Professor,* B.A., Hunter College, 1933; M.A., Colu bia, 1939; Ph.D., City University of New York, 1971.

Frederick A. Busi, *Associate Professor,* B.A., American International, 1960; M.A Connecticut, 1963; Ph.D., 1965.

Marie-Rose Carre, *Professor,* B.-ès-L., Alger, 1938; L.-ès-L., 1940; D. de l'U., Paris, 1963.

Thomas Cassirer, *Professor,* B.A., McGi 1945; Ph.D., Yale, 1953.

Ursula F. Chen, *Associate Professor,* B.A., Cologne, 1950; M.A., Cornell, 195 Ph.D., 1968.

Donald G. Dugas, *Assistant Professor,* B.A., Holy Cross, 1955; M.A., Middlebury, 1956; Ph.D., Michigan at Ann Arbor, 1969.

Doranne Fenoaltea, *Associate Professor,* B.A., Mount Holyoke, 1959; M.A., Harvard, 1968; Ph.D., 1971.

William V. Gugli, *Associate Professor,* B.A., Brown, 1954; B.S.F.S., Georgetow 1955; M.A., Brown, 1959; Ph.D., Syracuse, 1967.

Patricia J. Johnson, *Professor,* B.A., Mi nesota, 1953; M.A., 1956; Ph.D., 1960.

Robert B. Johnson, *Professor,* B.A., Ohio, 1940; M.A., Wisconsin, 1946; Ph.D., 1949.

Nancy E. Lamb, *Assistant Professor,* B.A., Mt. Holyoke, 1959; M.A. (French) Middlebury, 1960; M.A. (Spanish), 1964; D.M.L., 1971.

ara Sturm Maddox, *Professor of French nd Italian,* B.A., Minnesota, 1963; M.A., 965; Ph.D., North Carolina, 1967.

'aul A. Mankin, *Professor,* B.A., Califor- ia at Los Angeles, 1948; M.A., 1953; 'h.D., Yale, 1959.

)aniel R. Martin, *Assistant Professor,* .A., Illinois at Chicago Circle, 1969; M. 'hil., Yale, 1972; Ph.D., 1973.

)ennis D. Porter, *Associate Professor,* .A., Cambridge, 1957; Ph.D., California t Berkeley, 1966.

\gnes G. Raymond (Howard), *Professor,* .A., Wilson College, 1937; M.A., yracuse, 1945; D.M.L., Middlebury, 956.

Benjamin Rountree, *Associate Professor,* .A., Georgia, 1953; M.A., 1955: Ph.D., 'ale, 1960.

Richard Santerre, *Assistant Professor,* .A., Boston College, 1966; M.A., 1968; 'h.D., 1974.

Harold L. Smith, Jr., *Associate Professor,* .-ès-L., Paris, 1940; B.A., Swarthmore, 947; M.A., Columbia, 1950; Ph.D., Visconsin, 1955.

Robert E. Taylor, *Professor,* B.A., Reed College, 1943; M.A., Columbia, 1947; 'h.D., 1951.

eymour S. Weiner, *Professor,* B.A., City College of New York, 1940; M.A., Califor- ia at Berkeley, 1941; Ph.D., Columbia 950.

upporting Faculty

arah N. Lawall, *Professor of Comparative iterature,* B.A., Oberlin, 1956; Ph.D., ale, 1961.

ssociated Five College Graduate 'aculty

effrey J. Carre, *Professor of Romance anguages* (Amherst College).

dward Kaplan, *Assistant Professor* Amherst College).

mile Langlois, *Associate Professor* Mount Holyoke College).

acques-Henri Perivier, *Professor* (Mount lolyoke College).

ames Sacré, *Assistant Professor* (Smith Col- ge).

Margaret L. Switten, *Professor* (Mount lolyoke College).

Italian Graduate Faculty

(Supplementary courses in Italian are offered by the following members in the Department of French and Italian.)

Annette Evans, *Assistant Professor,* B.A., Southern Methodist, 1961; M.A., Wisconsin, 1964; Ph.D., 1972.

Frank Fata, *Assistant Professor,* B.A., Columbia College, 1961; M.A., Johns Hopkins, 1964; Ph.D., 1966.

Sara Sturm Maddox, *Professor of Italian and French.*

Goffredo Pallucchini, *Assistant Professor,* B.A., Universita di Firenze, Firenze, Italy, 1968; M.A., Wisconsin, 1970 (in Italian); M.A., 1972 (in Comparative Literature); Ph.D., 1974.

Anthony Terrizzi, *Assistant Professor,* B.A., Rutgers University, 1961; M.A., 1968; Ph.D., 1972.

Zina Tillona, *Professor and Special Assistant to the Chancellor,* B.A., Hunter College, 1950; M.A., Wellesley, 1951; D.M.L., Middlebury, 1960.

THE FIVE COLLEGE COOPERATIVE PH.D. PROGRAM

In addition to the general requirements for the degree at the University, the following special requirements must be met:

1. A minimum of 18 credit hours after the M.A.
2. History of the French Language or its equivalent (3 credits; not to satisfy requirements 6. or 7. below).
3. Bibliography and Methods or its equivalent (3 credits, not to be taken simultaneously with Romance Philology).
4. A Seminar on Contemporary Critical Theory.
5. An Individual Study course.
6. Two foreign languages (i.e., in addition to French and English):
   a. One at advanced-level proficiency (determined by a score of 700 on the Princeton ETS examination, or three credits of literature at junior-senior level or above with minimum grade of B.)
   b. The other at intermediate-level proficiency (either by score of 550 on Princeton ETS examination or a minimum grade of B at the 140 or 409 level).
   c. Proficiency in Latin, required of candidates writing a dissertation on the Middle Ages or the Renaissance, determined by the Classics Department at the University.
   d. The language requirement must be satisfied before the preliminary examination.
7. The satisfactory completion of written and oral preliminary examinations on:
   a. Two broad chronological periods/centuries, etc. Normally they should be contiguous (19th-20th, 18th-19th, etc.).
   b. A genre.
8. French 899 Ph.D. Dissertation.

MASTER OF ARTS DEGREE COURSE REQUIREMENTS

The following special requirements must be met:

1. A minimum of 30 graduate credit hours—(up to 6 credits may be transferred).
2. Expository Prose (3 credits).
3. Textual and Literary Analysis (3 credits).
4. French Civilization (3 credits).
5. At least one course in three different periods of French Literature.
6. A terminal examination, both written and oral, given upon satisfactory completion of course requirements.

THE MASTER OF ARTS IN TEACHING DEGREE

The Department of French and Italian offers a program of studies in French language and literature and professional preparation leading to the degree of Master of Arts in Teaching. The primary aim of the program is to prepare students with a B.A. degree to become effective classroom teachers at the secondary school level. A total of 39 credit hours are required for the degree, of which 21 will be in French language and literature and 18 in professional education and electives. One semester of the program is to be devoted to a practicum consisting of a variety of field experiences. Students are expected to complete the M.A.T. requirements in three or four semesters, excluding summer work.

Courses specifically for the teacher of French include the following: Introductory and advanced methods of teaching French at the secondary level; Applied Linguistics; Research studies in Foreign Language Education; Practicums in teaching, individualized instruction, educational technology and supervision; and Independent Study courses of directed readings.

Candidates entering the program are expected to be fluent in all aspects of the language. Undergraduate work should have been undertaken in phonetics, advanced grammar, composition, conversation and literature. Students deficient in French grammar or phonetics may be required to do remedial work in these areas once admitted to the program, but such work may not be counted towards the degree. Students transferring from other institutions may be granted up to nine semester hours towards the M.A.T. A final examination is given upon satisfactory completion of course work.

3-Figure Course Numbering System

Intermediate figure:
1 Middle Ages
2 16th C
3 17th C
4 18th C
5 19th C
6 20th C
7 language
8 general
9 special problems, seminars
0 esthetics

Terminal figure:
1, 2, 3 general
4 plural genres, centuries
5, 6 novel
7, 8 poetry
9 theater
0 themes

All courses carry 3 credits unless otherwise specified.

564 French-African and Caribbean Literature Mr. Cassirer

571 Applied Linguistics (French)
French linguistics applied to the teaching of French in secondary schools.
Mr. Berwald, Mrs. Chen

572 Methods of Teaching French
Teaching methods. Recommended for those intending to teach French in high schools or elementary schools.
Mr. Berwald

573 Teaching Methods for Intermediate and Advanced French
The teaching of Intermediate and Advanced French. Continuation of Educ 307. Mr. Berwald

583 Introduction to Romance Philology
Diachronic development from Latin into the modern Romance languages, with emphasis on French, Italian Spanish, and Portuguese.
Mrs. Chen, Mrs. Maddox

584 French Canadian Literature
Contemporary Canadian poets, novelists, and dramatists writing in French.
Mr. Santerre

601,602 Literary Movements
Characteristics and definitions of a selected movement or period (*e.g.*, Baroque, Romanticism).
Credit, 3 each semester.

611 Old French Readings
The monuments of French literature from the earliest times to the 15th Century. Miss Dufau, Mrs. Maddox

624 Renaissance Prose
Major French prose writers of the 16th Century. Mrs. Fenoaltea, Mr. Martin

627 Renaissance Poetry
Representative poets of the 16th Century. Emphasis on the Pléiade.
Mrs. Fenoaltea, Mr. Martin

629 French Theater from Renaissance to the Classical Age
Major trends and representative plays of the period. Mrs. Fenoaltea, Mr. Martin

631 17th Century Comic Vision
Emphasis on Molière, Mme de Sévigné, La Fontaine, and La Bruyère.
Mr. Garaud, Mr. Rountree

632 17th Century Tragic Vision
The classical tragic vision in the theater and the novel as represented by Corneille, Racine, and Mme de La Fayette.
Mrs. Carre, Mr. Rountree

634 17th Century Philosophers and Moralists
The writers most important in classical thought, especially Descartes, Pascal, and LaRochefoucauld.
Mrs. Carre, Mr. Garaud

644 18th Century Literature
The chief writers and thinkers of the Age of Enlightenment.
Mrs. Raymond, Mr. Taylor

645 18th Century Novel
The satirical novel as represented by LeSage, Montesquieu, Voltaire, and Diderot; the sentimental novel as represented by Prévost, Marivaux, Rousseau, Bernardin de Saint-Pierre. Mr. Taylor

649 18th Century Theater
Readings in the French theater from LeSage to Beaumarchais.
Mrs. Raymond

650 19th Century Poetry: Themes
Themes vary; see Department announcement.
Mr. Gugli, Mr. Johnson, Mr. Weine

655 19th Century Romantic Novel
The development of the novel from th Revolution to midcentury: Constant Chateaubriand, Balzac, Hugo, Dumas Stendhal.
Mr. Busi, Mr. Porter, Mr. Smit

656 19th Century Realistic-Naturalistic Novel
The novel of the second half of the century: Flaubert, Zola, Maupassant, etc.
Mr. Busi, Mr. Smith, Mr. Weine

657 19th Century Romantic Poetry
The major movements in poetry fron Chénier to Baudelaire.
Mr. Busi, Mr. Gugli, Mr. Weine

658 19th Century Symbolist Poetry
Baudelaire, Rimbaud, Mallarmé Verlaine. Mr. Johnson

659 19th Century Theater
The development of the theater from Hugo to Rostand and his contemporaries. Mr. Porter, Mr. Weine

665,666 Major Figures in Contemporary Novels
The novel of social concern, the novel o personal and esthetic concern, and the novel concerned with the human condition, tradition, and innovation.
Credit, 3 each semester.
Mrs. Johnson, Mr. Mankin
Mr. Weine

667 Contemporary French Poetry I
Major French poets from the turn of the century to surrealism: Valéry, Apollinaire, Claudel, Reverdy, Eluard, Desnos, Cendrars and the beginning of surrealism with the first manifesto of 1924.
Mr. Johnson, Mrs. Lawall

668 Contemporary French Poetry II
French poetry from surrealism to the present: Breton, Char, Michaux, Perse, Ponge, Bonnefoy, and selected contemporaries. Surrealism as a movement in itself and as a precursor of more recent poetry.
Mrs. Carre, Mr. Johnson, Mrs. Lawall

669 20th Century Theater
The main currents of modern French theater from symbolism to the theater of the absurd as seen in about fifteen representative plays.
Mr. Mankin, Mrs. Raymond

70 Expository Prose
Practice in the skills of expository writing in French through the composition of frequent short essays on a range of literary and intellectual topics.

71 Graduate Reading Course
For graduate students in other departments preparing for the M.A. or Ph.D. reading examinations. No previous knowledge of French required.
No Credit.

72 Teaching Assistant Workshop I
Designed to train new teaching assistants in the techniques of the teaching of French. Miss Dufau
Credit, 2. (Credit does not count toward M.A. or Ph.D.)

73 Teaching Assistant Workshop II
Designed to train new teaching assistants in the techniques of the teaching of French. Miss Dufau
Credit, 2. (Credit does not count toward M.A. or Ph.D.)

31 French Civilization
Introduces students to the problematic concept of civilization and to a number of aspects of contemporary French or Francophone life and institutions.
Miss Bragger, Mr. Cassirer, Mr. Garaud, Mr. Porter

33 Textual and Literary Analysis
Supplements textual analysis of poems and short prose passages with the formal analysis of selected complete works (longer poems, plays and novels).

98 M.A.T. Teaching Practicum
Mr. Berwald

99 Master's Thesis
Credit, 6.

01 Literary Criticism: Nineteenth Century
Development of criticism from Sainte-Beuve. Mr. Weiner

02 Literary Criticism: 20th Century
Critical tenets and practices in the twentieth century. Read-through a study of the craft of fiction of individual novelists.
Credit, 3 each semester. Mr. Weiner

15 The "Roman Courtois"
Emphasis on Chrétien de Troyes and his successors. Prerequisite, French 710 or equivalent. Miss Dufau, Mrs. Maddox

17 Medieval Epic Poetry
Some of the outstanding chansons de geste and the development of the cycles of epic poetry. Prerequisite, French 710 or equivalent. Mrs. Maddox

719 The Medieval Theater
The principal dramatic forms from the 12th through the 15th century. Prerequisite, French 710 or equivalent.
Miss Dufau

728 Pleiade, "Ecole Lyonnaise"
Emphasis on the Pleiade from the background of the "grands rhétoriqueurs," Marot and the "école lyonnaise." Mrs. Fenoaltea

730 17th Century "Libertinage"
Aspects of the history of thought from Montaigne to Pierre Bayle. Mr. Taylor

771 History of the French Language
The development of the Romance languages, particularly French, from Vulgar Latin. Mrs. Chen

772 Provencal Philology
Provençal or some other language particularly; see Department announcements. Mrs. Chen, Mrs. Maddox

773 The History and Practice of Translation in French
The practical and theoretical problems arising in translation.

774 Foreign Language Research
Recent research studies in foreign language education. Mr. Berwald

780 Bibliography and Methods of Literary Research
Required of candidates for the degree of Doctor of Philosophy.
Mr. Taylor, Mr. Weiner

805 Genre Course on the Novel
The analysis of various aspects of the development of novel forms from their earliest manifestations to those of the present day. Mrs. Johnson, Mr. Porter

807 Genre Course on Poetry
Form, structure and the development of French poetry from the Middle Ages to the present. Mr. Johnson

809 Genre Course on the Theater
The poetics of the different branches of theater, including tragedy, comedy, drame bourgeois, melodrama and farce.
Mr. Porter

822 Rabelais and Montaigne
The changing ideas in the French Renaissance. Mrs. Fenoaltea, Mr. Martin

831 LaFontaine and His Times
Mr. Garaud

832 Moliere
The man and the dramatist, his ideas and his techniques.
Mr. Garaud, Mr. Rountree

833 Racine
A detailed analysis of the major and minor plays as drama and as poetry.
Mr. Rountree, Mrs. Carre

841 Voltaire and His Times
Mr. Taylor

842 Montesquieu and His Times
Mrs. Raymond

843 Diderot
The original thinker and compiler.
Mr. Taylor

855 Balzac and Stendhal
Explores selected works of these novelists from various modern critical points of view. Mr. Porter, Mr. Weiner

856 Flaubert and Zola
Explores selected works of these novelists from various modern critical points of view. Mr. Porter

858 Baudelaire and the Symbolists
Emphasis on the esthetics and poetics of Baudelaire alone; his work as an introduction to the gamut of symbolist poetry. Mr. Johnson

863 The Anti-Novel and Anti-Theater
The reaction against established literary form and conventions in the novels of such authors as Sarraute, Robbe-Grillet, Butor, and Simon, and in the plays of such authors as Ionesco and Adamov.
Mrs. Johnson

864 Camus and Sartre
The novels, short stories, plays and philosophical essays. Mrs. Johnson

865 Proust and Gide
Detailed analysis of parts of *A la recherche du temps perdu* and representative works of Gide's fiction. Mr. Mankin

869 Claudel and Giraudoux
Their contribution to the literary theater of the 20th century as seen through a study of esthetic and moral values.
Mrs. Raymond, Mr. Mankin

899 Doctoral Dissertation
Credit, 18.

The following graduate level courses are offered in Italian Language and Literature.

507 Dante and the Duecento I
Selections from the works of Dante and his contemporaries; intensive study of the *Divine Comedy.*

Geology

508 Dante and the Duecento II

514 Pre-Humanism and the Early Renaissance
Literature of the 14th and 15th centuries; Petrarca, Boccaccio, Poliziano, Alberti, Sacchetti.

524 The High Renaissance
Literature of the late 15th and 16th centuries; Machiavelli, Castiglione, Ariosto, Tasso.

544 Literature of the 18th Century
Significant currents and authors from Goldoni to Alfieri.

554 Neo-Classicism and Romanticism
The works of Foscolo, Leopardi, and Manzoni.

555 19th Century Novel
Development of the novel from Verga to Sveve.

559 19th Century Theater
Italian theater from Verga to the present.

564 Pirandello
Critical reading of representative works of Pirandello. Thematic and stylistic analysis of his art with particular focus on the relationship between his fiction and theater. Ms. Tillona

565 20th Century Novel
Development of the novel from Pirandello to the present.

567 Modern Poetry
Italian poetry from Carducci to the present with emphasis on hermetism.

569 20th Century Theater
Development of the Italian theater from the early grottesco to the present. Chiarelli, D'Annunzio, Pirandello and the theater of the absurd, Betti, De Filippo and others.
Mr. Terrizzi, Ms. Tillona

572 Basic Methods
Introduction to audio-lingual techniques of teaching Italian at the secondary level and contrastive analysis of the structures of Italian and English.

583 Introduction to Romance Philology
Diachronic development from Latin into the modern Romance languages, with emphasis on French, Italian, Spanish, and Portuguese.

Graduate Faculty

George E. McGill, *Professor and Head of the Department of Geology and Geography,* B.A., Carleton College, 1953; M.S., Minnesota, 1955; Ph.D., Princeton, 1958.

Joseph H. Hartshorn, *Professor and Graduate Program Director,* B.S., Harvard, 1947; M.A., 1950; Ph.D., 1955.

Raymond S. Bradley, *Assistant Professor (Geog),* B.Sc., Southampton (England); M.S., Colorado, 1971; Ph.D., 1974.

R.W. Bromery, *Professor and Chancellor of the Amherst Campus,* B.S., Howard, 1956; M.S., American University, 1962; Ph.D., Johns Hopkins, 1968.

Laurie Brown, *Assistant Professor,* A.B., Middlebury, 1968; M.S., Wyoming, 1972; Ph.D., Oregon State, 1974.

Terence Burke, *Associate Professor (Geog),* B.A., Birmingham (England), 1952; Ph.D., 1967.

Dayton E. Carritt, *Professor,* B.S., Rhode Island, 1937; Ph.D., Harvard, 1948.

Oswald C. Farquhar, *Professor,* B.A., Oxford, 1947; M.S., 1948; Ph.D., Aberdeen, 1951.

James A. Hafner, *Associate Professor (Geog),* A.B., Miami of Ohio, 1963; M.A., Michigan, 1965; Ph.D., 1970.

Stephen E. Haggerty, *Associate Professor,* B.S., London University, Imperial College of Science and Technology, 1964; Ph.D., 1968.

Leo M. Hall, *Associate Professor,* B.S., St. Lawrence, 1954; M.S., Cincinnati, 1956; Ph.D., Harvard, 1959.

John F. Hubert, *Professor,* B.A., Harvard, 1952; M.S., Colorado, 1954; Ph.D., Pennsylvania State, 1958.

Peter B. Isaacson, *Adjunct Assistant Professor,* B.A., Colorado, 1968; Ph.D., Oregon State, 1974.

Howard W. Jaffe, *Professor,* B.A., Brooklyn College, 1942; D.Sc., Geneva, 1972.

David R. Meyer, *Associate Professor (Geog),* B.A., Concordia Teachers College, 1965; M.S., Southern Illinois, 1967; Ph.D., Chicago, 1970.

Stearns A. Morse, *Professor,* B.A., Dartmouth, 1952; M.S., McGill, 1958; Ph.D., 1962.

Ward S. Motts, *Associate Professor,* B.A., Columbia, 1949; M.S., Minnesota, 1951; Ph.D., Illinois, 1957.

Alan W. Niedoroda, *Assistant Professor,* B.A., Queens College, 1966; M.S., Florida State, 1968; Ph.D., 1972.

Charles W. Pitrat, *Associate Professor,* B.A., Kansas, 1949; M.S., Wisconsin, 195[illegible] Ph.D., 1953.

Rutherford H. Platt, *Associate Professor (Geog),* B.S., Yale, 1962; J.D., Chicago, 1967; Ph.D., 1971.

J. Michael Rhodes, *Five College Associate Professor,* B.Sc., Bristol (England), 1959; M.Sc., Australian National University, 196[illegible] Ph.D., 1970.

Peter Robinson, *Professor,* B.A., Dartmouth, 1954; M.S., Otago, New Zealand, 1958; Ph.D., Harvard, 1964.

Gregory W. Webb, *Professor,* B.A., Columbia, 1948; M.A., 1950; Ph.D., 1954.

Richard W. Wilkie, *Associate Professor (Geog),* B.A., Washington, 1960; M.A., 1963; Ph.D., 1968.

Donald U. Wise, *Professor,* B.S., Franklin and Marshall, 1953; M.S., California Institute of Technology, 1955; Ph.D., Princeton, 1957.

REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY DEGREE

The general requirements for the Ph.D degree are those of the Graduate School. A candidates are expected to have a backgroun approximately equivalent to this University M.S. degree in Geology, although this by n means precludes special programs for thos entering with special strength in another sci ence. All candidates should be familiar witl the current M.S. Degree Requirements. Ad ditional requirements for the Ph.D. are a follows:

1. Course work or independent study, deeme necessary to prepare the candidate for th preliminary comprehensive examination.

2. Ph.D. candidates are expected to gai some experience in teaching.

3. Qualification at the Intermediate level ir one foreign language. French, German, and Russian are highly recommended. Other foreign languages may be accepted by the faculty on recommendation of the Guidance Committee if the candidate can demonstrate a professional need for the language offered.

4. Passage of a preliminary comprehensive examination in two major and two minor areas of concentration specified in the departmental announcement.

5. Participation in each semester of residence in Geology 791, Professional Seminar, and at least one oral presentation of research results in this seminar.

6. Submission of a research manuscript to, or publication of a research article by, a reputable publisher prior to receipt of the degree. Abstracts do not satisfy this requirement.

These requirements are implemented with the aid of a Guidance Committee. Further details are contained in the Departmental announcement.

Note

By Graduate Council ruling, English is a foreign language if the candidate's native language is not English and if a significant body of (geologic) literature exists in the student's native language. When languages other than the above four are involved, judgement as to the existence of a significant body of geologic literature would rest with the Guidance Committee, the Graduate Geology Faculty concurring.

One purpose of the manuscript submission requirement is to encourage preparation of the dissertation in the form of one or more journal manuscripts.

REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

The general requirements for the M.S. degree are those of the Graduate School. In addition the following are required:

1. A full year course in two of the following: biology, chemistry, physics.

2. A full year course of college mathematics or statistics, beyond the pre-calculus level, appropriate to the student's course of study.

3. Six weeks of field training.

4. Participation in each semester of residence in Geology 791, Professional Seminar, and at least one oral presentation of research results in this seminar.

5. An incoming candidate is given a diagnostic interview and assigned a temporary adviser. The candidate should then propose a guidance committee of three graduate faculty, for appointment by the Department Head. The program of study must be approved by the guidance committee. The committee conducts a semesterly review of the candidate's program and progress.

6. A candidate may elect a program with or without a *thesis*. The former is appropriate for those with strongly focused research interests, and the latter for those wishing to emphasize breadth of geological or interdisciplinary knowledge. The content of the General Examination and the number of examiners will reflect the candidate's choice of program. The General Examination will include a presentation and defense of a research project or thesis. Further details are contained in the Departmental announcement.

All courses carry 3 credits unless otherwise specified.

511 Optical Mineralogy
Principles of optics; optical properties of minerals and methods for their measurement, relationship between optical properties and crystallography; mineral identification by the immersion method; crystal chemistry of rock-forming minerals. Offered fall semester. Prerequisite, Geol 310.
Mr. Jaffe, Mr. Hall, Mr. Morse

516 Aqueous Geochemistry
Chemical processes affecting the distribution and circulation of chemical compounds in natural waters, and the formulation of an adequate theoretical basis for the chemical behavior of ocean waters, estuaries, rivers, lakes, groundwaters and soil-water systems. Prerequisites, Chem 111, 112.

517 Sedimentary Geochemistry
The evolution of sedimentary rocks, the geochemical cycles of the major elements in the Earth's crust, and the applications of isotope geochemistry. Prerequisites, Chem 111, 112, or permission of instructor.

519 Chemical Oceanography
The chemical properties of the ocean that influence and are influenced by marine physical, biological, and geological systems. Prerequisites, one year college-level chemistry, physics, and mathematics. Mr. Carritt

520 Petrography
Identification of minerals in thin section; common igneous, sedimentary, and metamorphic rocks in thin section; routine petrographic calculations and measurements; introduction to petrogrenetic theory. Examination of selected igneous and metamorphic rocks in the field. Offered spring semester. Prerequisites, Geol 320 and 511.
Mr. Robinson

530 Tectonics
Past and present mechanisms creating the broader framework of global geology; mountain-building, ocean-basin structure, continental drift, mantle processes, continental evolution, early history of the earth, structural geology of selected key regions of the globe. Offered fall semester. Prerequisites, Geol 430, 320, undergraduates by permission. Mr. Wise

539 Advanced Geological Mapping
Complete series of operations required for publication of a geological map: field location and drawing of contacts, collection and interpretation of field notes, automated data reduction, drafting, and methods of reproduction. Offered fall semester. Prerequisites, Geol 320 and 430 or equivalent training.
Mr. Robinson, Mr. Wise

540 Paleoecology
Application of ecological principles to the interpretation of fossil animal and plant communities as indicators of depositional environments. Emphasis on marine faunas. Offered spring semester. Prerequisites, Geol 340.
Mr. Pitrat

550 Geometrics
Design of geological experiments; the collection and analysis of quantitative data in geology. Offered fall semester. Prerequisite, permission of instructor.
Mr. Hubert

555 Physical Oceanography
Physical properties of sea water and their variations; water masses and their circulation patterns; interaction between ocean and atmosphere; dynamics of waves, tides, and ocean currents; techniques of oceanographic study. Offered fall semester. Prerequisites, two years of college work toward a major in science or engineering: Physics 141 and 142; or 161, 162, and 163; calculus recommended. Mr. Niedoroda

557 Coastal Processes
Sedimentologic and hydrographic processes of coastal environments and their relation to shoreline morphology and

sediment transport and deposition. Emphasis on field studies of the estuaries and beaches along the New England shoreline. Prerequisites, Geol 445 and 560 or permission of instructor. Mr. Niedoroda

560 Geomorphology
Origin and developments of landforms in relation to geological processes, climate, and tectonic history. Application of geomorphic methods to interpretation of geologic history. Offered fall semester. Prerequisite, Geol 330 or permission of instructor.

562 Pleistocene Geology
Geochronology of Pleistocene time as related to climatic changes and their influence on glaciology, erosional and depositional processes, landforms, sedimentary deposits, shifting sea level, and the paleontological record. Field trips by arrangement. Offered spring semester. Prerequisite, permission of instructor. Mr. Hartshorn

565 Photogeology and Remote Sensing
Laboratory study of the instruments and methods employed in making measurements and preparing base maps and geologic maps from vertical and oblique aerial photos, together with applications of other remote-sensing techniques. Offered spring semester. Prerequisite, Geol 430.

567 Astrogeology
Geology of the solar system. Emphasis on the solid bodies, age, sequence of events, composition, surficial and internal geologic processes. Photogeologic mapping of selected portions of Moon and Mars using recent imagery from the space program. Offered fall semester. Prerequisites, Geol 430, 320, undergraduates by permission. Mr. Wise

570 Geophysics
The physics of the earth and the gravitational, magnetic, electrical, and seismic methods of geophysical exploration. Laboratory problems and computations. Offered fall semester. Prerequisites, Geol 330 and 320, or permission of instructor. Ms. Brown

575 Hydrogeology
Theoretical and practical hydrogeology; ground-water hydraulics, chemistry of ground water, field methods, relation of ground water to geology, basinal, and regional groundwater problems. Offered fall semester. Prerequisites, one year of geology; one year of chemistry and Math 124 or equivalent recommended. Mr. Motts

580 Geology in Engineering
Relation of geologic materials, processes, forms, and techniques to the planning and execution of engineering projects, such as river control, shoreline protection, and construction of highways, bridges, tunnels, dams, etc. Emphasis on case histories. Offered spring semester. Prerequisites, Geol 320, 330, 445, and 560, or permission of instructor; Civ Eng 520 and/or other engineering courses recommended.
Credit, 2. Mr. Farquhar

581 Non-Metalliferous Economic Geology
Geology, distribution, and utilization of nonmetallic mineral deposits, including coal and other solid hydrocarbons. Given in alternate years. Offered fall semester. Prerequisites, Geol 330, 320, 445, and 511. Mr. Farquhar

582 Metalliferous Economic Geology
Nature, origin, and distribution of metalliferous ores. Criteria for recognition of ore deposits, changes in character of ore with depth, mineral associations and types of wallrock alteration. Optical and microchemical properties of ore minerals and ore concentrates. Given in alternate years. Offered fall semester. Prerequisites, Geol 330 and 320; 723 desirable. Mr. Haggerty

584 Petroleum Geology
Geologic occurrence of oil and gas. Laboratory work consists of problems related to reservoir and trap conditions and to methods of subsurface study. Offered fall semester. Prerequisites, Geol 330 and 445; 636 desirable. Mr. Webb

596 Independent Study
Credit, 2-6.

597 Special Problems
Credit, 2-6.

610 Advanced Mineralogy
Crystal chemistry, structure, and composition of minerals; interpretation, evaluation, and calculation of mineralogical data; precise measurement of mineralogical constants by optical microscopy, x-ray diffraction, and other methods. Offered fall semester. Prerequisite, Geol 511 or permission of instructor. Mr. Jaffe or Mr. Morse

614 Geochemistry
Abundance relations and principl governing the distribution, behavio and migration of the elements and n clides in the geochemical spheres of t earth, in meteorites, and in the un verse. Offered spring semester. Prer quisites, Geol 310 and 320 and one ye of college chemistry, or permission instructor. Mr. Jaf

615 Topics in Marine Chemistry
The present state and trends in a fe segments of marine chemistry by reac ing of contemporary literature and cor tact with visiting scientists. Prerequ sites, graduate standing in a science engineering department, or permissio of instructor. Pre-enrollment intervie requested. Mr. Carri

621 Sedimentary Petrology
Analysis and origin of primary sedi mentary structures; petrology of sand stones; heavy-mineral analysis and in terpretation. Petrology of carbonat rocks. Field applications emphasized Offered spring semester. Prerequisites Geol 445 and 511. Mr. Huber

622 Clay Petrology
Structure of clay minerals, identifica tion, weathering and alteration of min erals, properties of clay surfaces, geo chemical studies of clays in geology, soi science, and soil mechanics. Prerequi site, permission of instructor.

630 Structural Geology of Metamorphic Rocks
Analysis of the geometry of intensely de formed rocks with emphasis on inter pretation of structural features in the field. Offered fall semester. Prerequi site, Geol 430 or equivalent. Mr. Hal

636 Regional Geology of North America
Tectonic concepts as exemplified by the stratigraphic and structural evolution of North America. Offered spring semester. Prerequisite, Geol 330. Mr. Wise

640 Stratigraphic Paleontology
Application of selected fossils and faunal assemblages to stratigraphic correlation, and paleoecological and paleogeographic analysis, with reference to evolutionary trends. Offered spring semester. Prerequisite, Geol 340 and 449. Mr. Pitrat

655 Geological Oceanography
Physical characteristics and geological processes of the ocean basins and mar-

gins, and their bearing on interpretation of geologic history. Offered spring semester. Prerequisites, Geol 445 and 562. Mr. Webb

560 Advanced Geomorphology
Selected topics and current problems in geomorphology. Offered spring semester. Prerequisite, Geol 562.
Credit, 2.

570 Physics of the Earth
Introduction to the physics of the earth as determined from seismological, heat flow, gravity, and paleomagnetic data and their relationship to observed geological phenomena. Offered spring semester. Prerequisites, Geol 570 and permission of instructor. Ms. Brown

575 Advanced Hydrogeology
Advanced ground-water hydrology, analog models, pumping tests, flow-duration curves, flow nets, Hubbert's hydrologic models, water chemistry, and geophysical methods of investigation. Offered spring semester. Prerequisites, Geol 575 and Math 124, or permission of instructor. Mr. Motts

596 Independent Study
Credit, 2-6.

597 Special Problems
Credit, 2-6.

598 Practicum in Geology
Credit, 2-6.

599 Master's Thesis
Credit, 10.

623 Igneous Petrology
Introduction to phase equilibrium in mineral systems; emphasis on liquidus relationships. Review of theoretical and experimental data and of natural occurrences and their bearing on problems of rock genesis. Offered fall semester. Prerequisite, Geol 520 or permission of instructor. Mr. Morse

624 Metamorphic Petrology
Introduction to phase equilibrium in mineral systems; emphasis on metamorphic reactions. Review of theoretical and experimental data and natural occurrence and their bearing on metamorphic processes and on the mapping of metamorphic mineral facies. Offered fall semester. Prerequisite, Geol 520 or permission of instructor. Mr. Robinson

630 Advanced Structural Geology
Dynamics and mechanics of rock deformation, including theoretical and experimental studies, with field applications. Offered spring semester. Prerequisites, Geol 430 and calculus. Mr. McGill

745 Cenozoic Stratigraphy
Occurrence, correlation, and origin or marine and terrestrial Cenozoic deposits and their relation to paleogeographic and tectonic conditions, with particular reference to North America. Offered fall semester. Prerequisites, Geol 445 and 560; 636 recommended. Mr. Webb

746 Paleogeographic Analysis
Methods of paleogeographic analysis and mapping, including problems in stratigraphic synthesis, basin analysis, and paleogeologic and palinspastic mapping. Offered spring semester. Prerequisites, Geol 430, 340, and 445. Mr. Webb

770 Advanced Geophysical Interpretation Techniques
Numerical and graphical analyses of airborne and ground geophysical surveys, including the use of digital computer programs, and geologically meaningful interpretation. Offered fall semester. Prerequisites, Geol 570 and permission of instructor. Ms. Brown

791 Professional Seminar
Review of current literature or discussion of selected topics.
Credit, 1 each semester.

792 Coastal Processes Seminar
Seminar on coastal geology.
Credit, 1. Mr. Niedoroda

793 Seminar in Pleistocene Geology
Current work and publications in glaciology, glacial geology, and related aspects of Quaternary history. Studies of related fields, such as archaeology, early man, geochronology, palynology, plant geography, and paleontology. Prerequisite, permission of instructor.
Credit, 1-3. Mr. Hartshorn

794 Seminar in Northern Appalachian Geology
The stratigraphy, structure, petrology, and geophysics of the Northern Appalachians and current research being conducted in the region. Offered spring semester. Prerequisites, Geol 430, 445, and 520 or equivalents. Mr. Hall,
Credit, 1-3. Mr. Robinson, Mr. Wise

795 Seminar in Sedimentology
Depositional and diagenetic processes in terrigenous and carbonate environments and the interpretation of the rock record. Mr. Hubert
Credit, 1-3.

796 Independent Study
Credit, 2-6.

797 Special Problems
Credit, 2-6.

891 Seminar in Structural Geology
Review and discussion of current research. Prerequisite, at least one graduate course in structural geology.
Credit, 1-3. Mr. McGill, Mr. Hall
Mr. Wise, Mr. Robinson

892 Seminar in Petrology
The literature of igneous and metamorphic petrology and related aspects of mineralogy. Prerequisites, Geol 511 and 520 or equivalents. Mr. Robinson
Credit, 1-3. Mr. Morse, Mr. Jaffe,
Mr. Haggerty, Mr. Hall

897 Special Problems
Credit, 2-6.

899 Doctoral Dissertation
Credit, 18.

Germanic Languages and Literatures

Graduate Faculty

Sigrid Bauschinger, *Associate Professor and Head of the Department of Germanic Languages and Literatures,* Ph.D., Frankfurt, 1959.

Friedrich Wilhelm von Kries, *Associate Professor and Graduate Program Director,* B.A., British Columbia, 1957; M.A., Washington, 1962; Ph.D., 1965.

E.M. Beekman, *Associate Professor,* B.S., California at Berkeley, 1963; Ph.D., Harvard, 1968.

James E. Cathey, *Associate Professor,* B.S., Oregon State, 1962; M.A., Washington, 1964; Ph.D., 1967.

Frank R. Hugus, *Associate Professor,* B.S., Pennsylvania State, 1963; M.A., 1965; Ph.D., Chicago, 1972.

Henry A. Lea, *Associate Professor,* B.S., Pennsylvania, 1942; M.A., 1951; Ph.D., 1962.

Sara J. Lennox, *Assistant Professor,* B.A., De Pauw, 1965; M.A., Wisconsin, 1966; Ph.D., 1973.

Wilfried Malsch, *Professor,* Ph.D., Freiburg, 1957.

Volker Meid, *Professor,* Ph.D., Frankfurt, 1965.

Wolfgang Paulsen, *Professor,* Ph.D., Berne, 1934.

Klaus Peter, *Associate Professor,* Ph.D., Frankfurt, 1965.

Carroll E. Reed, *Professor,* B.A., Washington, 1936; M.A., 1937; Ph.D., Brown, 1941.

Albert M. Reh, *Associate Professor,* Ph.D., Munich, 1957.

Lawrence Ryan, *Professor,* B.A., Sydney, 1953; Ph.D., Tübingen, 1958.

Eva Schiffer, *Associate Professor,* B.S., Massachusetts, 1946; M.A., Radcliffe, 1947; Ph.D., 1962.

Associate Five-College Graduate Faculty

Sidonie Cassirer, *Professor* (Mount Holyoke College).

Judith Ryan, *Associate Professor,* (Smith College).

Willy Schumann, *Professor* (Smith College).

Hans R. Vaget, *Associate Professor* (Smith College).

The Department of Germanic Languages and Literature offers graduate work leading to the degrees of Master of Arts (M.A.), Master of Arts in Teaching (M.A.T.) and the Doctor of Philosophy (Ph.D.) in three areas of specialization: Modern German Literature, Medieval Literature and Germanic Philology.

FIVE-COLLEGE COOPERATIVE PH.D. REQUIREMENTS

SPECIALIZING IN MODERN GERMAN LITERATURE

The following courses are required:

1. 702 *Old High German,* or 703 *Gothic,* or 704 *Old Norse,* or 705 *Old Saxon,* or English 702 *Old English.*
2. One course in medieval literature.
3. One course in the literature of the 15th, 16th, and 17th centuries.
4. In general, it is expected that the remaining courses will be chosen from the literature courses offered by the Department.

SPECIALIZING IN MEDIEVAL LITERATURE

The following courses are required:

1. 702 *Old High German*
2. 704 *Old Norse,* or 705 *Old Saxon,* or 703 *Gothic,* or English 702 *Old English,* or French 710 *Old French.*
3. Two courses in German literature from the 15th century to the present.

In general, it is expected that the remaining courses will be chosen from the medieval literature courses offered by the Department. Recommendations for additional courses: one course in medieval history, one course in medieval philosophy.

SPECIALIZING IN GERMANIC PHILOLOGY

The normal program requires the completion of six courses in Philology, two courses in Linguistics, one course in Medieval Literature, and one course in Modern Literature.

Language requirement
Candidates for the Ph.D. will be required to show advanced proficiency in one foreign language (other than German or English) pertinent to their field of specialization.

THE MASTER OF ARTS DEGREE PROGRAM

The M.A. degree program is designed provide both a program meaningful in itse and a foundation for further progress towa the Ph.D.

The Department reserves the right to gra the M.A. as a terminal degree; admission candidacy for the Ph.D. requires the Depar ment's permission and does not follo automatically upon completion of the M.A Prerequisites for admission include a B.A with a major in German language ar literature and indication of ability to do su cessful graduate work. Deficiencies i literary background and insufficient con mand of spoken or written German must b remedied.

Language requirement
For the M.A. degree the Department r quires proficiency in German.

Program of study
Ten courses (30 credit hours) are required all M.A. candidates by University regula tion. Full-time students are normally ex pected by the Department to take minimum of *three* courses in each semeste Those holding teaching assistantships in th Department are expected to complete the course requirements for the M.A. withi four consecutive semesters of the regula academic year. The successful completion the following courses is required: 585 *Stru ture of German* or 584 *History of Germa* 601 *Middle High German,* 620 *Advance Composition and Translation,* and 67 *Bibliography and Methodology.*

In addition, the following course is require of all Teaching Assistants and is strongl recommended to all who plan to teach Ge man, especially at the college level: 583 *Pr blems and Methods of Teaching Germa* Also, *five* courses selected from the Depar ment's offerings of literature courses, in cluding those in medieval literature; the fiv courses must include at least *one* course i the 18th Century, *one* course in the 19t Century, and *one* course in 20th Centur literature.

MASTER OF ARTS IN TEACHING (M.A.T.)

The Master of Arts in Teaching degre (M.A.T.) is offered to candidates who are in terested in or are already teaching Germa at the secondary school or community/junio

college level. The aim of the program is to prepare those who do not have adequate training or classroom teaching experience in the presentation of German, but who hold the B.A. degree, to become effective classroom teachers. Applications considered and acted upon by the Department of Germanic Languages and Literatures.

General Requirements
The M.A.T. degree program consists of two basic parts: a) academic requirements in the field of German and b) professional education requirements. The former a) encompasses *at least* 21 credits in courses numbered 500 and above, as in all M.A. degree programs. The latter includes a teaching practicum, courses necessary for professional certification, and some variable credits (depending upon the candidate's experience and background).

Minimum Program (39 credits required; 6 undergraduate credits may be included in the total)

Twenty-one credits are needed in the academic discipline, including 585 Structure of German or *584 History of German,* 620 Advanced Composition and Translation, three courses covering different periods of German literature, one course in Linguisitcs or a second major language (e.g., French, Spanish, Latin, Russian, Italian).

Nine credits must be earned in professional education courses (including at least two of these four areas: educational psychology, philosophy of education, methods and materials, and curriculum development; some of these courses may be taken in individual departments other than the School of Education, including *583 Problems and Methods of Teaching German.*

For one semester (or equivalent therof) a full-time internship or teaching practicum and concurrent practicum seminar, German 599 must be taken (9 credits).

The teaching practicum normally involves full-time supervised classroom teachinga experience at the appropriate level for a period of time sufficient to immerse the candidate fully in the role of classroom teacher. While this is likely to be a full academic semester in one location, shorter periods of time in more than one location are not precluded.

Both the teaching practicum and the practicum seminar, which run concurrently, have the cooperative support of the departmental faculty. Overall responsibility for the teaching practicum and practicum seminar rests with the departmental M.A.T. supervisor.

Students also desiring certification in a state other than Massachusetts may supplement their program to meet the particular requirements of that state.

Minor Teaching Fields
All those preparing for teaching German are strongly urged to prepare themselves in the teaching of another major language. Generally, at least 18 credits of undergraduate and graduate work should be taken in such a language in order to establish competence in a minor teaching field.

All courses carry 3 credits unless otherwise specified.

German

583 Problems and Methods of Teaching German
Various methods of teaching a foreign language based on recent developments in applied linguistics and programmed learning. Prerequisite: Advanced proficiency in German.

584 History of German
Introduction to the history of the German language.

585 Structure of German
An introduction to the principles of linguistics and the structure of the German language.

599 Practicum and Seminar in the Teaching of German
Credit, 6-15

601 Middle High German
Readings in Middle High German literature with an introduction to the grammar.

620 Advanced Composition and Translation
Required of all degree candidates. May be waived for students judged to have native speaking proficiency.

677 Bibliography and Methodology
An introduction to tools and methods of research.

697 Special Topics
Credit, 1-3.

699 Master's Thesis

702 Old High German
Grammar and reading of prose and poetry; an introduction to Old High German dialects.

703 Gothic
Grammar and reading of texts.

704 Old Norse
Grammar and reading of selections from the sagas.

705 Old Saxon
Grammar and reading of selections from the *Heliand.*

715 The Heroic Epic
A detailed study of *Nibelungelied* and *Kudrun* with reference to the precourtly epic and later *Dietrichsepik.* (Offered in alternate years.) Prerequisite, German 601.

716 Courtly Lyric Poetry
An introduction to the formal study of *Minnesang* and *Spruchdichtung* from the Kürenberger to Konrad von Würzburg with emphasis on Walter von der Vogelweide and social and historical context of the period. (Offered in alternate years.) Prerequisite, German 601.

717 The Courtly Epic
A comprehensive literary analysis of selected epics by Hartmann von Aue, Wolfram von Eschenbach, Gottfried von Strassburg. (Offered in alternate years)

718 Narrative and Didactic MHG Literature
The didactic narrative from the 11th to the 13th century. (Offered in alternate years) Prerequisite, German 601.

730 Literature of the 15th and 16th Centuries
Humanism and Reformation.

733 17th Century Poetry and Prose
Poetry and prose and relevant poetic theories.

734 17th Century Drama
Drama and relevant poetic theories.

741 From Enlightenment to Rococo
Literary theory and practice in the first half of the 18th Century.

742 Lessing
His literary theory in the context of his time, his drama.

743 From *Empfindsamkeit* to Storm and Stress

749 The Classical Goethe
The major works of Goethe's Weimar period; poetry, drama, fiction.

751 Goethe's *Faust*

752 Schiller
Schiller's literary and philosophical works.

758 Early Romanticism
Philosophical background and literary works of the early Romantic movement.

759 Later Romanticism
Later development of Romanticism from Brentano to Heine, including the anti-Romantic tendencies of the time.

763 19th Century Poetry and Prose
Poetry by Heinrich Heine, Eduard Mörike, Annette von Droste-Hülshoff a.o. and of prose by Henrich Heine and the writers of Biedermeier and Das Junge Deutschland.

764 19th Century Drama
Kleist, Grillparzer, Büchner, Grabbe, Hebbel.

765 Literature of Realism
From Gotthelf to Fontane.

771 20th Century Poetry I
Emphasis on George, Hofmannsthal, Rilke.

772 20th Century Poetry II
Emphasis on expressionist and post-expressionist poetry.

773 20th Century Prose I
The early Thomas Mann and his generation.

774 20th Century Prose II
New trends of fiction after the First World War.

775 20th Century Drama
From Wedekind to Brecht.

779 Post-World War II Literature

791 Special Topics in Philology and Medieval Studies

792 Special Topics in the Literature of Classicism

793 Special Topics in the Literature of Romanticism

794 Special Topics in the Literature of the Nineteenth Century

795 Special Topics in the Literature of the Twentieth Century

796 Special Problems
Credit, 1-3.

810 Comparative Germanic Grammar I (Phonology)
The sound systems of the various Germanic dialects from a synchronic and diachronic point of view. Prerequisites, any two of the following: 601, 702, 703, 704, 705.

811 Comparative Germanic Grammar II (Morphology)
The grammatical structure of the various Germanic dialects from a synchronic and diachronic point of view. Prerequisite, German 810.

812 German Dialectology
Modern German dialects, their differentiation and structural analysis. Prerequisite, German 601 or 702 or special permission.

850 The Later Goethe

878 Structure and History of German Verse

887 History of Aesthetic Theories in Germany
General trends in the history of aesthetics. Discussion of major works since Opitz.

888 History and Problems of Literary Criticism

891 Seminar in Philology

892 Seminar in Medieval Literature

893 Seminar in Literature

897 Special Topics

899 Doctoral Dissertation
Credit, 1-9

Danish

551 Dano-Norwegian Literature

Dutch

551 Dutch-Flemish Literature

Swedish

551 Swedish Literature

History

Graduate Faculty

Paul S. Boyer, *Professor and Chairman of the Department of History,* B.A., Harvard, 1960; M.A., 1961; Ph.D., 1966.

Hugh F. Bell, *Associate Professor and Graduate Program Director,* B.A., Princeton, 1941; J.D., Michigan, 1948; Ph.D., Cornell, 1970.

Dean Albertson, *Professor,* B.A., California at Berkeley, 1942; M.A., 1947; Ph.D., Columbia, 1955.

Joyce A. Berkman, *Assistant Professor,* B.A., California at Los Angeles, 1958; M.A., Yale, 1959; Ph.D., 1967.

Winfred E. A. Bernhard, *Professor,* B.S., Harvard, 1942; M.A., Columbia, 1948; Ph.D., 1961.

Milton Cantor, *Professor,* B.A., Brooklyn, 1947; M.A., Pennsylvania, 1948; Ph.D., Columbia, 1954.

Miriam U. Chrisman, *Professor,* B.A., Smith, 1941; M.A., American University, 1948; M.A., Smith, 1955; Ph.D., Yale, 1962.

William A. Davis, *Professor,* B.A., Colgate, 1935; M.A., Harvard, 1938; Ph.D., 1956.

Mario S. DePillis, *Professor,* B.A., Chicago, 1952; M.A., 1954; Ph.D., Yale, 1961.

Fred W. Drake, *Associate Professor,* B.A., Stanford, 1961; M.A., 1963; M.A., Harvard, 1965; Ph.D., 1971.

Harold J. Gordon, Jr., *Professor,* B.A., Richmond, 1940; M.A., Yale, 1948; Ph.D., 1953.

Louis S. Greenbaum, *Professor,* B.A., Wisconsin, 1950; M.A., 1951; Ph.D., Harvard, 1955.

Robert W. Griffith, *Associate Professor,* B.A., DePauw, 1962; M.A., Wisconsin, 1964; Ph.D., 1967.

Robert A. Hart, *Professor,* B.A., Indiana, 1954; M.A., 1959; Ph.D., 1964.

Joseph M. Hernon, Jr., *Associate Professor,* B.A., Catholic University, 1959; Ph.D., Trinity College, Dublin, 1963.

Vincent Ilardi, *Professor,* B.A., Rutgers, 1952; M.A., Harvard, 1953; Ph.D., 1958.

William M. Johnston, *Professor,* B.A., Harvard, 1958; Ph.D., 1965.

Robert E. Jones, *Associate Professor,* A.A., Lafayette, 1963; Ph.D., Cornell,1968.

George E. Kirk, *Professor,* B.A., Cambridge, 1932; Diploma in Classical Archaeology, 1933; M.A., 1936.

Bruce G. Laurie, *Assistant Professor,* B.A., Rutgers, 1965; M.A., Pittsburgh, 1967; Ph.D., 1971.

Archibald R. Lewis, *Professor,* B.A., Princeton, 1936; M.A., 1939; Ph.D., 1940.

Jane M. Loy, *Associate Professor,* B.A., DePauw, 1962; M.A., Wisconsin, 1964; Ph.D., 1969.

Gerald W. McFarland, *Professor,* B.A., California at Berkeley, 1960; M.A., Columbia, 1964; Ph.D., 1965.

Robert H. McNeal, *Professor,* B.A., Yale, 1952; M.A., Columbia, 1954; Ph.D., 1958.

Richard H. Minear, *Professor,* B.A., Yale, 1960; M.A., Harvard, 1962; Ph.D., 1968.

Stephen Nissenbaum, *Associate Professor,* B.A., Harvard, 1961; M.A., Columbia, 1963; Ph.D., Wisconsin, 1968.

Stephen B. Oates, *Professor,* B.A., Texas, 1958; M.A., 1960; Ph.D., 1968.

Stephen E. Pelz, *Associate Professor,* B.A., Johns Hopkins, 1964; M.A., Harvard, 1966; Ph.D., 1971.

Robert A. Potash, *Professor,* B.A., Harvard, 1942; M.A., 1947; Ph.D., 1953.

Howard H. Quint, *Professor,* B.A., Yale, 1940; M.A., Stanford, 1942; Ph.D., Johns Hopkins, 1947.

Charles W. Rearick, *Associate Professor,* B.A., College of Idaho, 1964; M.A., Harvard, 1965; Ph.D., 1968.

Leonard L. Richards, *Associate Professor,* B.A., California at Berkeley, 1956; M.A., 1961; Ph.D., California at Davis, 1968.

Roland Sarti, *Associate Professor,* B.A., City College of New York, 1960; M.A., Rutgers, 1962; Ph.D., 1967.

Neal Shipley, *Associate Professor,* B.S., Groves City College, 1959; M.A., Harvard, 1960; Ph.D., 1967.

Marvin Swartz, *Associate Professor,* B.A., Princeton, 1963; M.A., Yale, 1964; Ph.D., 1969.

Jack Tager, *Associate Professor,* B.A., Brooklyn, 1958; M.A.,California at Berkeley, 1959; Ph.D., Rochester, 1965.

Jack M. Thompson, *Associate Professor,* B.A., South Carolina, 1949; M.A., 1953; Ph.D., 1958.

John Van Steenberg, *Assistant Professor,* B.S., University of Indiana, 1944; M.A., University of Chicago, 1947: Ph.D., Harvard, 1957.

Ronald D. Ware, *Associate Professor,* B.A., Cincinnati, 1950; M.S., Wisconsin, 1956; Ph.D., 1960.

Robert White, *Assistant Professor,* B.A., Haverford, 1963; M.A., Texas, 1966; Ph.D., 1972.

Franklin B. Wickwire, *Professor,* B.A., Hanover, 1952; M.A., Indiana, 1956; Ph.D., Yale, 1961.

Mary B. Wickwire, *Associate Professor,* B.A., Wellesley, 1956; M.A., Yale, 1957; Ph.D., 1963.

David Wyman, *Professor,* B.A., Boston, 1951; M.Ed., Plymouth Teachers College, 1961; M.A., Harvard, 1962; Ph.D., 1966.

Graduate Programs in History

More complete information on graduate study in History may be found in the Departmental statement, *Graduate Program in History,* available from the History Office. Because requirements are currently under revision, students are advised to consult the most recent edition of this statement.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM

The Department of History offers doctoral work in four major areas of history: Europe, Great Britain, United States and Latin America. Each of these areas is divided into various sub-fields.

On admission as a Ph.D. candidate each student is assigned a Guidance Committee to advise and approve the choice of doctoral fields appropriate to the student's major interests. The candidate chooses an area of specialization, and within this area a major field.

Course Work
Candidates without previous graduate training: 15 courses including four graduate seminars. Candidates with an M.A. from another institution: eight courses in the 600-800 series including two graduate seminars.

Language proficiency
Candidates must pass the departmental examination demonstrating reading ability in one foreign language. Students specializing in areas for which knowledge of more than one foreign language is normal for scholarly work must pass the examination in the relevant languages.

Preliminary Comprehensive Examination
Candidates must pass the general examination in four fields (major area of specialization and three supporting fields). At least two but not more than three are in the candidate's area of specialization. With the approval of the major adviser and of the departmental Graduate Program Director, the candidate may offer one field in a department other than history.

Dissertation
A dissertation is required. Candidates must submit and defend in an oral examination an acceptable dissertation on a topic approved by the candidate's Dissertation Committee. Doctoral degree candidates shall complete all requirements within six calendar years of initial registration to that degree program (if admitted without the Master's degree or its equivalent) or within four calendar years of initial registration (if admitted with the Master's degree or its equivalent).

Residence
Minimum: full-time residence at the University of Massachusetts for one academic year.

THE MASTER OF ARTS DEGREE PROGRAM

Each M.A. candidate selects a major field of concentration from those offered by the History Department. The M.A. fields offered include the following: United States, Latin America, Europe, Great Britain, Near and Middle East, East Asia, History of Science. Selection of the student's adviser is based on the choice of a field of concentration.

Language proficiency
All M.A. candidates must demonstrate a reading knowledge in one foreign language. U.S. history specialists may substitute proficiency in an alternative tool of research.

Course work
1. Each student must obtain 30 credits, at least 24 of which must be in the 600-800 series.
2. Students may write a Master's thesis for 8 credits as a substitute for two courses in the 600-800 series, one of which may be a seminar.

3. A minimum of two graduate seminars and one course in historiography must be completed.
4. Four courses is the normal permissible program per semester.

Examination
The candidate must pass an oral examination on the primary field of interest to be conducted by a three-member examining committee. All students are expected to complete their programs within a three-year period from initial registration.

THE MASTER OF ARTS PROGRAM FOR TEACHERS

This M.A. degree program emphasizes the special needs of secondary school teachers; it stresses breadth of knowledge rather than concentration, and critical reading more than the development of research techniques.

The student is required to obtain 30 credits, at least 24 of which must be at the 600-800 level. Each student's program is planned with reference to preparation for teaching. The student must complete a semester course entitled "The Teaching of History" (if offered), and may include three courses in associated disciplines at the discretion of the adviser.

Examinations in foreign languages are not required of students in this program, yet admission to certain courses in the history of non-English speaking countries necessitates a competence in the relevant language.

Nine credits is the minimum program per semester. The student should expect to complete his or her program within a three-year period.

A candidate must pass an oral examination based, in consultation with the adviser, upon an appropriate range of his or her graduate courses including "The Teaching of History" (if offered). Three members of the graduate faculty will conduct the examination. Transfer to the regular Master of Arts program may be made with the approval of the department.

600 European Historiography to the Enlightenment
Critical evaluation of the techniques and ideas of major historians and influential schools of historical interpretation from the Greeks through the Renaissance. Mr. Ware
Credit, 4.

601 European Historiography; The Enlightenment to the Present
Techniques and ideas of major historians and influential schools of historical interpretation, and the relation of historiography to the intellectual and political history of modern Europe.
Credit, 4. Mr. Greenbaum, Mr. Johnston

602 American Historiography Through the Civil War
Interpretations of major themes as developed in the works of leading historians.
Credit, 4.

603 American Historiography; 1865 to the Present
Interpretations of major themes as developed in the works of leading historians. Mr. McFarland
Credit, 4.

604 Latin American Historiography
Techniques and interpretations developed by representative historians from the conquest to the present. Prerequisite, reading knowledge of Spanish or Portuguese, or permission of instructor.
Credit, 4. Mr. Potash

605 Philosophy of History
The "philosophy of history" both as epistemology and as a method of explanation, and a comparison of the aims of history and the sciences. Analysis of the nature of history: the difference between truth and fact, the possibility of objectivity, and the theory of historical explanation. Major historians in the field are read, from Thucydides and Augustine to Croce and Toynbee.
Credit, 4. Mr. Johnston

606 Late Medieval and Renaissance Palaeography
Instruction in reading the scripts of original documents. Required of Ph.D. specialists in these fields. Mr. Ilardi
Credit, 4.

611 Topics in Ancient History I
The Near East and Greece. Papers may obtain seminar credit with instructor's approval. Mr. Kirk
Credit, 4.

612 Topics in Ancient History II
Early Italy and Rome, to the end of the Empire in the West. Papers may obtain seminar credit with instructor's approval. Mr. Kirk
Credit, 4.

613 Topics in Medieval History
Continuity between ancient and medieval civilization. Prerequisites, working knowledge of Latin and one modern language (German, French, Italian) or permission of instructor.
Credit, 4. Mr. Lewis, Mr. War

614 Topics in the Age of the Renaissance and Reformation
European culture and institutions between 1300 and 1600. A working knowledge of a modern European language is generally required, or permission of instructor. Mr. Ilardi
Credit, 4.

616 Topics in the Age of the Enlightenment
The movement of ideas in Atlantic civilization during the 18th century. The mind and writings of representative European and American thinkers. Emphasis on politics, religion, science, literature and the arts. Mr. Greenbaum
Credit, 4.

621 Topics in Recent European History
Basic developments in diplomatic, political, social, and economic history since 1800. Emphasis on organic growth and change. Mr. Gordon
Credit, 4.

622 Topics in World War II and Aftermath
Pre-nuclear total war in its military development and its political, economic and social ramifications in modern Western society; the postwar settlements and their effects. Mr. Gordon
Credit, 4.

623 Topics in the Recent Social History of Europe
The social changes resulting from the industrialization of Europe since 1815 and their relationship to economic and political developments. The methods and materials needed for effective work in recent social history. A series of short problems illustrating proper utilization of the sources. Mr. Gordon
Credit, 4.

624 Topics in Nineteenth-Century Intellectual History
Selected major currents in European thought since the French Revolution, their origins, development, and influence. Reading knowledge of French or German desirable. Mr. Johnston
Credit, 4.

31 Topics in Tudor and Stuart England
Selected aspects of the Tudor age; the interplay of social and political factors involved in the Stuart Revolution. Constitutional developments emphasized.
Credit, 4. Mr. Shipley

32 Topics in British Imperial History Since 1783
Aspects of such general topics as the problems of imperial government after the American Revolution, the Durham Report and the growth of the dominions, the difficulties and effect of implantation of British institutions in Asia and Africa, the lessening of British control and the Statute of Westminster, and the political and economic importance of the Commonwealth in world affairs. Mr. Wickwire, Mrs. Wickwire
Credit, 4.

33 Topics in Britain in the 19th Century
Central themes and topics. Emphasis on the history of thought in its relation to political, economic, and social developments. Mr. Hernon
Credit, 4.

36 Topics in Russian History
Russia in the 19th and 20th centuries. Emphasis on Russian and Soviet historiography. Intensive reading and analyses of selected topics.
Credit, 4. Mr. Jones, Mr. McNeal

37 Topics in Modern Spanish History
Spanish history from the end of the reign of Philip II to the end of the Spanish Civil War.
Credit, 4.

38 Topics in Modern Italy
Selected topics in 19th and 20th centuries Italian history, including the *Risorgimento,* Church and State, parliamentary politics, Marxism, and Fascism. A working knowledge of Italian required, or permission of instructor.
Credit, 4. Mr. Sarti

46 Topics in Early American History
Colonial America from discovery and settlement of the New World through the Federalist era.
Credit, 4. Mr. Bell, Mr. Bernhard

47 Topics in the Era of the Confederation and the Constitution
The formative years of the American nation; the evolution of federal and state constitutions; basic political issues and conflicts; the pattern of economic and social development.
Credit, 4. Mr. Bernhard, Mr. Davis

648 Topics in the National Period
A reading course. Basic features of American political, social, and economic history from the rise of Jeffersonianism to the Civil War.
Credit, 4. Mr. Cantor, Mr. Richards

649 Topics in the American Civil War Era
Analysis and interpretation of slavery and abolition, Southern nationalism, the breakdown of national parties, causes of the War, wartime politics and the War's impact. Mr. Oates
Credit, 4.

650 Topics in the Gilded Age
Investigation of national re-unification, Grantism, dead center politics, genteel reform, the new industrialism and business leadership, labor and agrarian problems. Mr. McFarland
Credit, 4.

651 Topics in the Progressive Era of the United States
Emphasis on the political, social, economic, and cultural aspects of the Progressive Era; analysis of the interpretations of historians and others.
Credit, 4. Mr. Tager, Mr. Thompson

652 Topics in American Diplomatic History
Readings in the primary and secondary sources for the study of important phases in American diplomacy.
Credit, 4. Mr. Hart

653 Topics in the United States Between the World Wars
Major issues in American political, social, and economic life between the two World Wars. Mr. Quint, Mr. Wyman
Credit, 4.

655 Topics in United States Intellectual History
Specific aspects of such general topics as the American adaptation of the European heritage, the growth of the concept of Americanism, the emergence of patrician leadership, the achievement of realistic democracy, the triumph of nationalism, the assertion of individualism in a corporate society, and the scientific-humanistic culture conflict. Mr. Boyer,
Credit, 4. Mr. Cantor, Mr. Nissenbaum, Mr. Quint

656 Topics in Massachusetts History
Development of the Commonwealth and its relationship to regional and national institutions and thought from early colonial times to the present. Abundant primary and secondary source materials. A foundation for further research.
Credit, 4. Mr. Nissenbaum

657 Topics in United States Urban History
The origins of the modern American city and the complex problems engendered by large-scale urbanization.
Credit, 4. Mr. Tager

658 Topics in American Social History
A behavioral approach to the history of American society: the family, religion, ethnicity, socialization of children, explanations of social change, etc.
Credit, 4. Mr. DePillis

671 Topics in Modern and Contemporary Latin America
Political, economic, social, and ideological forces in the history of Latin America since independence. Reading knowledge of Spanish or Portuguese desirable. Mr. Potash
Credit, 4.

676 Topics in Islamic and Modern Middle-Eastern History and Politics
Readings in primary and secondary sources for the study of important aspects of Islamic and Middle Eastern development. Prerequisite, permission of instructor. Mr. Kirk
Credit, 4.

691 Topics in History
Readings, discussions, reports.
Credit, 4.

696 Special Problems in History
Directed reading, research or writing for qualified students. May be taken in conjunction with an undergraduate course. Permission of instructor required.
Credit, 1-6.

699 Master's Thesis
Maximum credit, 8.

700 Seminar in Medieval History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Lewis, Mr. Ware

701 Seminar in Renaissance and Reformation
Training in historical research. Prerequisite, permission of instructor.
Credit, 4 each semester; total credit, 4. Mr. Ilardi

703 Seminar in the Enlightenment
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Greenbaum

711 Seminar in 18th-Century Britain
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Wickwire

712 Seminar in Modern English History
Research on selected topics, 1890-1940. Prerequisite, permission of instructor.
Credit, 4. Mr. Hernon

716 Seminar in Modern Germany
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Gordon

717 Seminar in Modern France
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Rearick

718 Seminar in Russian History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Jones, Mr. McNeal

719 European Politics and Diplomacy Since 1815
Training in historical research and an introduction to the relationships among European nations in a critical period. Prerequisite, permission of instructor.
Credit, 4. Mr. Swartz

731 Seminar in Early American History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Bell, Mr. Bernhard

732 Seminar in the Age of Jacksonian Democracy
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Richards

733 Seminar in the Civil War and Reconstruction
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Oates

734 Seminar in the Westward Movement of the United States
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Davis, Mr. DePillis

735 Seminar in the Progressive Era in the United States
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Quint

736 Seminar in the United States Between the World Wars
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Quint

738 Seminar in American Diplomatic History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Hart

739 Seminar in American Intellectual History to the Civil War
Training in historical research. Prerequisite, permission of instructor.
Mr. Cantor, Mr. Nissenbaum
Credit, 4.

740 Seminar in American Intellectual History Since the Civil War
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Quint

751 Seminar in the Colonial History of Latin America
Training in historical research. Prerequisite, permission of instructor.
Credit, 4.

752 Seminar in Argentine History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Potash

753 Seminar in Mexican History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4. Mr. Potash

761 Seminar in Islamic and Modern Middle Eastern History and Politics
Training in historical research. Prerequisite, permission of instructor. Reading knowledge of a European language highly desirable. Mr. Kirk
Credit, 4.

771 Seminar on the Art and Technique of Biography
The human side of history. An appreciation of biographical literature; how to write biography. Students read and discuss several provocative biographies to see how the professionals put their books together. Students prepare biographical accounts of historical figures, drawing from letters, diaries, private journals, memoirs, and recollections.
Credit, 4. Mr. Oates

791 Research Seminar in History
Training in historical research. Prerequisite, permission of instructor.
Credit, 4.

899 Doctoral Dissertation
Credit, 18.

Home Economics

Graduate Faculty

Helen R. Vaznaian, *Professor and Graduate Program Director,* B.S., State College, Framingham, 1946; M.Ed., Boston, 1951; Ph.D., Connecticut, 1973.

Irene Nystrom Alschuler, *Adjunct Instructor,* B.S., Utah, 1961; M.A., Stanford, 1963; M.A., San Francisco State, 1965; Ed.D., New York at Albany, 1972.

Nylda Lopez-Ansari, *Associate Professor,* B.S., Inter American University, San German, Puerto Rico, 1954; M.S., Pennsylvania State, 1958; Ph.D., Florida State, 1969.

Kenneth A. Ertel, *Adjunct Professor,* B.S., Minnesota, 1953; M.Ed., Eastern Washington College of Education, 1960; Ed.D., Washington State, 1967.

Mary E. Green, *Associate Professor,* B.S., Framingham State, 1956; M.Ed., Boston State, 1960; Ph.D., Cornell, 1968.

Jack Hruska, *Adjunct Assistant Professor,* B.S., Michigan State, 1956; M.A., Colorado State, 1960; Ph.D., Michigan State, 1969.

Aurelia Toyer Miller, *Associate Professor,* B.S., Bluefield State, 1938; M.A., Atlanta, 1942; Ph.D., New York University, 1952.

Georgina Moroney, *Assistant Professor,* A.B., College of St. Elizabeth, N.J., 1961; M.Ed., Massachusetts, 1969; Ph.D., 1976.

Marion A. Niederpruem, *Professor,* B.S., New York at Buffalo, 1935; M.S., New York University, 1944; Ph.D., Michigan, 1956.

Joseph H. Pleck, *Associate Professor,* A.B., Harvard University, 1968; M.A., 1971; Ph.D., 1973.

Anne H. Rideout, *Professor,* B.S., Middle Tennessee State, 1959; M.A., Connecticut, 1968; Ed.D., Massachusetts, 1974.

Warren F. Schumacher, *Assistant Professor,* B.A., Cathedral, 1952; J.C.D., Gregorian University (Italy), 1961; M.S., Iona, 1967.

Madeleine Wheeler, *Associate Professor,* B.S., Saint Joseph College, 1938; M.S., Simmons, 1957; Ph.D., Pennsylvania State, 1971.

Harriet Wright, *Professor,* B.S., Framingham State, 1940; M.S., Illinois, 1949; M.P.H., Columbia, 1968.

The Division of Home Economics grants a Master of Science degree to those who complete one of its several graduate programs of study which are designed to facilitate the development of personal and professional competencies essential to the thrust of Home Economics, namely the improvement of individual and family life in a changing society. Specifically the programs of study prepare students for a variety of professional positions in education, in government and business, in Cooperative Extension and community services. In consultation with a graduate adviser and/or Guidance Committee, an individualized, interdisciplinary program is developed in accord with the student's academic background, major content area of interest, and future professional goals.

Within the Center for the Family, a Master of Science degree may be earned for programs of study in family life and education. Dr. Joseph H. Pleck is Associate Director of the Center for the Family and inquiries regarding this program may be addressed to him.

A candidate must have an accredited baccalaureate degree in Home Economics or in a related root discipline and the approval of the Admissions Committee of the Graduate Faculty of the Division of Home Economics. Acceptance also depends upon the fulfillment of the general regulations of the Graduate School of the University. Adequate study basic to an academic area of emphasis may be a prerequisite to graduate work in a particular program.

All courses carry 3 credits unless otherwise specified.

510 History of Costume
Western costume from ancient civilization to the present; the relationship of clothing to the period. Study tours. Prerequisite, HOM EC 125.

540 Adult Education in Home Economics
Organization of material, and selection, use, and evaluation of teaching techniques suited to group work with adolescents and adults. Credit toward meeting state standards for teachers and A.D.A. requirements. Prerequisite, minimum of 6 credits in major area.

591, 592, 593, 594, 595 Seminars
Seminars in various areas of Home Economics.
Credit, 3.

600 Apparel Design
Patterns and fitting problems: development and use of master pattern in executing original designs. One class hour, two 2-hour laboratories. Prerequisite, HOM EC 259 or permission of instructor.

605 Textiles
Analysis and evaluation of recent scientific and technical developments in fibers and finishes. Prerequisite, HOM EC 240.

620 Economics of the Family
In-depth analysis of families as producting and consuming units. Students develop a framework for understanding the role of the family in the economy of the United States.

625 The Consumer and Contemporary Economic Problems
An analysis of contemporary economic problems affecting consumers. Each student selects for study and discussion a major contemporary issue of concern to consumers.

640 Recent Research in Home Economics
A review in recent multi-disciplinary research to the subject matter emphases indigenous to Home Economics/Human Ecology.

650 Clothing and Human Behavior
The application of theories of human behavior such as social stratification, reference group theory, role theory, personality theories, and the theory of collective behavior as they apply to clothing and dress.

660 Curriculum and Methods in Home Economics
Organization, scope, and sequence of learning experiences in home economics education. Philosophy and content of curriculum, development of resource units, and methods of teaching. Prerequisites, Psych 601, 563, and Educa 251.
Credit, 4.

665 Practicum in Supervision in Home Economics Education
Inculdes field supervision of undergraduate student teachers in Home Economics and participation in the undergraduate Senior Seminar that accompanies student teaching. Experience in all phases of developmental supervisory responsibilities.

Hotel, Restaurant and Travel Administration

691, 692, 693, 694, 695 Seminar
Seminars in various areas of Home Economics.

699 Master's Thesis
Individual research.
Credit, 6-10.

700 Special Problems in an Area of Home Economics
Credit, 1-6.

791, 792, 793, 794, 795 Seminar
Seminars in various areas of Home Economics.

Graduate Faculty

Stevenson W. Fletcher, III, *Associate Professor and Head of the Department of Hotel, Restaurant and Travel Administration,* B.S., Pennsylvania State, 1960; M.S., 1964; Ph.D., Massachusetts, 1970.

Abraham Pizam, *Associate Professor and Graduate Program Director,* B.A., Hebrew University, 1963; M.P.A., New york University, 1965; Ph.D., Cornell, 1970.

Morton Backer, *Professor of Accounting.*

Joseph L. Balintfy, *Professor of General Business and Finance.*

Norman G. Cournoyer, *Professor,* J.D., American University Law School, 1955; M.B.A., Massachusetts, 1962; Ph.D., 1970.

Carl Dennler, Jr., *Professor of Accounting.*

Arthur Elkins, *Associate Professor of Management.*

Charles E. Eshbach, *Professor,* B.S., Massachusetts, 1937; M.P.A., Harvard, 1959; M.S., Massachusetts, 1964.

Frederick E. Finch, *Professor of Management.*

Joseph A. Litterer, *Professor of Management.*

Peter B. Manning, *Associate Professor,* B.S., Vermont, 1957; M.S., Rhode Island, 1961; Ph.D., University of Minnesota, 1969.

Jane F. McCullough, *Associate Professor,* B.S., Ohio University, 1943; M.S., 1953.

Gordon W. Paul, *Professor of Marketing.*

Abraham Pizam, *Associate Professor,* B.A., Hebrew University, 1963; M.P.A., New York University, 1965; Ph.D., Cornell, 1970.

George Schwartz, *Professor of Marketing*

Jack S. Wolf, *Professor of Marketing*

Albert L. Wrisley, Jr., *Professor,* B.S., Cornell, 1950; M.A., Michigan State, 1963; Ph.D., Massachusetts, 1971.

THE MASTER OF SCIENCE DEGREE PROGRAM

The Department of Hotel, Restaurant and Travel Administration jointly with the School of Business Administration offers a program leading to the M.S. degree in Hotel, Restaurant and Travel Administration. The program is designed to prepare students fo positions in corporate management, manage ment consulting, research and teaching in th field of hospitality and tourism management The course of study is designed primarily fo students whose undergraduate education is i Hotel, Restaurant and Travel Administra tion, Business Administration, Economic and related fields.

The program which includes courses in Hotel Restaurant and Travel Administration and i Business Administration is designed with flexible set of requirements so that a course o study can be jointly developed between th adviser and the student to met interest, ex posure and professional needs. The degree re quirements are:

1. Basic undergraduate course work i economics, mathematics, calculus, statistics computer methods, accounting, manage ment, finance, marketing, and Hotel Restaurant, and Travel Administration Students having deficiencies in any of thes areas are required to complete appropriat foundation courses. Students lacking background in Hotel, Restaurant and Trave Administration are required to complet HRTA 591A and/or other appropriate Hotel Restaurant, and Travel Administration courses.

2. A minimum of 30 graduate credits is re quired under the following pattern:
a. Five or more graduate level courses i HRTA.
b. Three or more graduate level courses i SBA; at least two of these in one o the following areas: Accounting an Finance; Personnel and Industrial Rela tions; Management Science; Marketing.
c. One course in management Quantitativ Techniques or secondary level statistics.
d. One elective course from any graduat program at the University with th approval of the student's adviser.
e. Students may substitute one of the fiv HRTA required courses with an Indepen dent Study or Special Problems Course No more than two Independent Study o Special Problems courses can count towar the 30 required credits.

3. Though a Master's thesis is not a man datory requirement, students are encourage to choose this option.

4. The candidate must pass a final examina tion based upon his or her graduate work Three members of the graduate faculty con duct the examination.

pplication

pplication for Graduate Study should be ade directly through the Dean of the Grad- te School, as described elsewhere in this *ulletin*. A complete application consists of) the application form, (b) two references,) two sets of official transcripts of all college- vel work, and (d) an official score report on e Graduate Management Admission Test MAT). Information on the GMAT may be btained from the Educational Testing Ser- ce, 20 Nassau Street, Princeton, NJ 08540. pplication deadlines are found elsewhere in is *Bulletin*. Action is taken immediately on receipt of a complete application by the raduate School.

andards for admission are consistent with ose described earlier in this *Bulletin*. A min- um GMAT score, as determined by the ogram Admission Committee, must be ob- ined by all applicants. Foreign students are t exempt from this requirement. Re mmended are use of one of the commer- ally available study guides, and taking the MAT as early as possible in order to allow ne for retaking the exam without delaying e admissions process. For applicants desir- g entry in the Summer Session or Fall mester, the GMAT application must be at e Educational Testing Service before the heduled examination date in March.

l courses carry 3 credits unless otherwise ecified.

1A Seminar in Hotel and Food Service Administration
The areas of importance to the operation of a hotel or food service operation.
Mr. Wrisley

0 Planning and Decision Models for the Hospitality Industries
The application of planning and decision models to management problems of the hospitality industries. Emphasis on analytical and quantitative decision models. Mr. Fletcher

0 Market and Economic Feasibility Studies in the Hospitality Industries
The identification and description of factors which affect a proposed new hotel or restaurant and the development of pro forma statements projecting costs and profits for such ventures.
Mr. Wrisley

0 Management Information Systems for the Hospitality Industries
The design and implementation of various management information systems within hospitality industry operations, and their implications for management organization, planning and control. Mr. Pizam

650 Economics of Tourism
The dimensions of tourism, markets, travel trends. Economics, social and cultural implications. Socio-economic models and measurements of the consequences of tourism on a region.
Mr. Pizam

691 Seminar in Personnel and Industrial Relations in the Hospitality Field
Personnel techniques and industrial relations practices in hotels and restaurants. Initiating and accommodating change, individual and organizational within the hotel or restaurant.
Mr. Pizam

693 Seminar in Facilities Programming for the Hospitality Industries
Principles and concepts from related disciplines as they apply to the planning and operation of lodging and feeding facilities. Emphasis on techniques for computer-assisted solutions.

697 Special Problems
Credit, 1-6.

699 Master's Thesis

Graduate Faculty

Hugh J. Miser, *Professor and Head of the Department of Industrial Engineering and Operations Research,* B.S., Vanderbilt, 1938; M.A., Armour Institute of Technology, 1940; Ph.D., Ohio State, 1946.

Robert D. Davis, *Associate Professor and Graduate Program Director,* B.S., Trinity College, 1956; Ph.D., Northwestern, 1968.

Joseph L. Balintfy, *Professor of General Business and Finance.*

Thomas P. Cullinane, *Associate Professor,* B.S., Boston, 1966; M.S., Northeastern, 1968; Ph.D., Virginia Polytechnic, 1972.

Richard J. Giglio, *Professor,* B.S., Massachusetts Institute of Technology, 1959; M.S., Stanford, 1964; Ph.D., 1966.

Frank C. Kaminsky, *Associate Professor,* B.S., Connecticut, 1961; M.S., Northwestern, 1964; Ph.D., 1965.

Klaus E. Kroner, *Associate Professor,* B.A., College of Wooster, 1949; B.E.E., New York University, 1957; M.S., American International, 1962.

Robert F. Rikkers, *Associate Professor,* B.S., Grinnell College, 1961; M.S., Northwestern, 1964; Ph.D., 1965.

Edward J. Rising, *Professor,* B.M.E., Rensselaer Polytechnic Institute, 1950; M.M.E., Syracuse University, 1954; Ph.D., State University of Iowa, 1959.

Richard W. Trueswell, *Professor,* M.E., Stevens Institute of Technology, 1952; M.S.I.E., 1958; Ph.D., Northwestern, 1964.

The graduate program in Industrial Engineering and Operations Research centers its attention on modern developments, both theoretical and applied, not only in the classical case of the field, but also its current extensions.

The Ph.D. offered by the program can emphasize industrial engineering, operations research, manufacturing and production, or an area of mutual interest to student and faculty. Minor areas of specialization are available in data processing and information-handling systems and in areas outside the Department such as computer science, business administration, engineering (all majors), statistics, economics, and mathematics. Although not formally established as a major or minor area of study it is possible to concentrate on the study of health-care delivery systems and other selected topical areas. The require-

ments for the Ph.D. degree are those described in this catalog under the general requirements for the Ph.D. degree.

A master's thesis is optional. If no thesis is written, a special project must be completed, bringing the minimum total number of credits required to 33 rather than 30 as under the thesis program. Industrial Engineering and Operations Research graduate students may select theoretical or applied research projects related to either the industrial-financial sector or the public sector; projects in the public sector may be concerned with health-care delivery, the environment, power, transportation, community service, or other subjects.

The Department requires no foreign-language reading competency for the doctoral degree.

Additional information may be obtained by writing to the Head of the Department.

Independent study (596, 696, 796, 896), Special Topics (497, 597, 697, 797, 897), and experimental courses (590, 690, 790, 890) are additional courses which are offered when demand exists and staff is available; credit for these courses will be determined by the Faculty in accordance with current Graduate School policy.

All courses carry 3 credits unless otherwise specified.

541 Hospital Industrial Engineering I
Introduction to the application of industrial engineering techniques to hospital management. Emphasis on the institution of industrial engineering programs in hospitals and the choice of suitable projects. Guest lecturers.
Mr. Rising

542 Hospital Industrial Engineering II
A projects course based upon material covered in IE/OR 541. A study is first made of previous industrial engineering projects in hospitals; each student then conducts a project of his own in a local hospital. Prerequisite, IE/OR 541.
Mr. Rising

556 Data Processing and Information Handling Systems
Principles and applications of data-processing and electronic computer systems for use by industrial engineers as a management tool for control and decision making. Prerequisite, permission of instructor. Mr. Trueswell

560 Safety Engineering
Occupational health and safety for industrial engineers. Especial attention directed toward requirements of the Occupational Safety and Health Administration of the Federal Government.

561 Design of Man-Machine Systems II
Human factors data applications to design of equipment and industrial urban and vehicle environment. Decision processes, communication. Problems of layout in industry, hospitals, etc. Involves more complex problem applications than IE/OR 460. Three class hours include lectures, demonstrations, and experiments. Project option. Prerequisite IE/OR 460 or permission of instructor.

575 Job Evaluation
The principles used to determine an evaluation of all occupations in order to establish an equitable rating between them, to establish sound wage and salary policies.
Credit, 2.

577 Layout and Design of Industrial Facilities
The principles applying to plant layout, materials handling, and plant location. Modes of layout presentations illustrated by means of a student project. Prerequisite, IE/OR 478 or permission of instructor. Mr. Kroner

582 Work Simplification
The principles involved in the simplification of means of doing work and in the application and use of these principles. One class hour, one 3-hour laboratory period.
Credit, 2.

699 Master's Thesis
Credit, 3-6.

701 Industrial Engineering and Operations Research
A series of seminars on current, or recent, research conducted by faculty, graduate students, and/or invited lecturers. Required course for all Industrial Engineering and Operations Research graduate students regardless of background.
Credit, 1.

720 Advanced Topics in Operations Research I
Theory and application of linear programming. Includes formulation of linear programming models, simplex, revised simplex and dual simplex al rithms, duality, parametric procedu interpretation of results, and the composition principle. Prerequisi permission of instructor.
Mr. Davis, Mr. Giglio, Mr. Rikk

722 Advanced Topics in Operations Research II
Applications and solution techniq for transshipment and discrete p gramming problems; included primal-dual algorithms for transsh ment problems, primal and dual c ting plane, branch and bound, a heuristic algorithms for discrete p grams. Prerequisite, IE/OR 720 equivalent. Mr. Balintfy, Mr. Da
Mr. Giglio, Mr. Rikk

724 Non-linear and Dynamic Programming
Theory and methods required to so non-linear problems: Kuhn-Tuc theory, quadratic, separable and g metric programming gradient te niques, and dynamic programming. so methods of stochastic programmi are surveyed. Formulations and ap cations are stressed and case examp are presented. Prerequisite, IE/C 720.
Mr. Davis, Mr. Giglio, Mr. Rikk

726 Operations Research Application
Introduction to the practice of ope tions research. Cases from the lite ture, the instructor's experience, a backgrounds of government, indust and education. Field work on an act case. Prerequisites, IE/OR 720 (conc rent), or permission of instructor.
Mr. Giglio, Mr. Mis

728 Recent Developments in Mathematical Programming
In-depth study of the theory and/or a plication of recent developments mathematical programming. Prereq sites, IE/OR 722 and 724.
Mr. Davis, Mr. Giglio, Mr. Rikk

751 Design for Production
The analysis of the factors and tec niques, theoretical and practical, inv ved in the effective design of producti systems. Prerequisite, basic knowled of statistics and operations research.
Mr. Cullinane, Mr. Da

752 Mechanization and Automation
Investigation and analysis of the pla ning and control problems associat

with the mechanization and automation of production systems. Prerequisite, basic knowledge of the area.

'53 **Methods of Measurement of Human Work**
Analysis of physiological and/or psychological aspects of work situations. Learning, skilled performance, decision processes. 3 class hours, lectures and projects. Prerequisite, permission of instructor.

'54 **Advanced Topics in Engineering Economy**
An integrated treatment of elements of engineering economy, economics, accounting, finance and operations research to provide a unified background for economics decision-making. Prerequisites, background in economics, engineering mathematics, and elementary probability theory.
Mr. Giglio

'55 **Quality Control and Reliability Engineering**
Current methods and techniques in quality control and reliability will be developed and discussed with emphasis being placed on the application of these principles. Prerequisite, IE/OR 572.
Mr. Rikkers, Mr. Rising

'56 **Advanced Topics in Data Processing**
Probability theory and information theory, components and operation of analog and digital computers, the analysis of large-scale data-processing systems as applied to the functioning of organizational control systems. Prerequisite, IE/OR 556. Mr. Trueswell

'57 **Human Factors Design Engineering**
The design of engineering systems, machines, consumer goods, etc. which accommodate the characteristics of the human users, operators and maintainers. Methods are developed for obtaining data about human performance, preferences, tolerances, and group behavior needed in engineering design problems. The case method is used with comprehensive readings in the literature. Student projects relating to human factors in design are encouraged. Prerequisite, permission of instructor.

'58 **Design of Closely-Confined Manned-Operations Stations (OE 781)**
Introductory anatomy and physiology; respiration, effects of various air composition and pressures on efficiency, console design, anthropometry, work place layout; design of controls, psychological and physiological effects of work in confined spaces; system design and allocation of function. Three class hours, one 2-hour laboratory per week. Prerequisite, IE/OR 757 or permission of instructor.
Credit, 4.

761 **Data Processing Systems Analysis and Design**
Analysis and design of small, medium, and large-scale electronic data processing systems. Real-time systems applications currently in use and proposed in the data-processing areas as opposed to the scientific areas. Electronic data processing systems and their effect on industrial and other organizations. Mr. Trueswell

762 **Computer Methods for Operations Research/Management Science Applications**
The development of computer systems to process data and implement algorithms in the operations research/management science literature. A project-oriented course; both technical and user-oriented manuals will be prepared for each project. Prerequisites, IE/OR 722 or IE/OR 724 (concurrent) and facility with a scientific programming language such as FORTRAN IV.
Mr. Kaminsky, Mr. Rikkers

763 **Information Science and Technology**
The information searching tools and techniques available to scientific and industrial organizations. Individual and group behavior in using these techniques. Critical analyses of information searching and retrieval systems, both manual and automated. Mr. Trueswell

777 **Manufacturing Control**
A quantitative and qualitative analysis of decision-making techniques in manufacturing and production control. Techniques in areas such as scheduling, queuing, inventory control, and process control are studied, extended, and evaluated. Prerequisites, basic knowledge of statistics, principles of operations research, and an elementary course in the field. Mr. Cullinane, Mr. Davis, Mr. Rising

783 **Simulation and Monte Carlo Technique**
Theory and application of simulation to problems of interest to the Industrial Engineer. Students are expected to design, develop, test, and evaluate several different types of complex simulation models. Prerequisites, IE/OR 472, 473.
Mr. Rikkers

784 **Stochastic Processes in Industrial Engineering I**
Application and theory of stochastic processes with primary emphasis on Markovian processes. Applications in inventory control, maintenance, and queuing theory. Prerequisite, IE/OR 471.
Mr. Kaminsky, Mr. Rikkers

785 **Stochastic Processes in Industrial Engineering II**
Continuation of IE/OR 784; the study of Markov processes. Included are non-Markovian processes, regenerative stochastic processes, and imbedded Markov processes. Both theory and applications. Prerequisite, IE/OR 784.
Mr. Kaminsky, Mr. Rikkers

786 **Decision Analysis**
Decision problems involving the choice between alternatives when uncertainty is present. Emphasis on the practical applications of this method, rather than on the more abstract theory. Topics include the structure of a Decision Analysis problem, the assessment of the decision-maker's value structure.

791 **Seminar in Operations Research**
Current applications, research activities, and research problems in operations research. Advanced master's and Ph.D. students only.
Mr. Davis, Mr. Giglio, Mr. Kaminsky Mr. Miser, Mr. Rikkers

792 **Seminar in Manufacturing and Production**
Current application, research activities, and research problems in manufacturing and production. Advanced master's and Ph.D. students only.
Mr. Cullinane, Mr. Davis, Mr. Rising

793 **Seminar in Data-Processing and Information-Handling Systems**
Current applications, research activities, and research problems in information-handling and data-processing systems. Advanced master's and Ph.D. students only. Mr. Trueswell

899 **Doctoral Dissertation**
Credit, 18

Graduate Faculty

Harvey L. Friedman, *Associate Professor of Political Science and Director of the Labor Relations and Research Center,* J.D., Boston University, 1947.

Solomon Barkin, *Professor of Economics.*

John L. Blackman, Jr., *Associate Professor of Economics.*

David R. Bloodsworth, *Lecturer and Assistant Director of the Labor Relations and Research Center,* M.S. in Labor Studies, Massachusetts, 1968.

Tim L. Bornstein, *Professor of Law and Industrial Relations.*

John T. Conlon, *Professor of Management.*

Hilda Golden, *Associate Professor of Sociology.*

Bruce G. Laurie, *Assistant Professor of History.*

George T. Sulzner, *Associate Professor of Political Science.*

Richard W. Trueswell, *Professor of Industrial Engineering.*

Barbara F. Turner, *Associate Professor of Human Development and Psychology.*

Stanley J. Young, *Professor of Management.*

THE MASTER OF SCIENCE IN LABOR STUDIES DEGREE PROGRAM

The graduate curriculum leading to the Master of Science in Labor Studies is an interdepartmental one, with responsibility for coordinating students' programs vested in the Labor Center faculty and approved by the Dean of the Graduate School.

Students in this program are individually advised by the Labor Center faculty.

Two years is considered the normal period for completing this degree.

Students who successfully complete the graduate curriculum in Labor Studies will be prepared primarily for labor union employment, and government service. and academic work.

The basic requirements for the degree are:

1. Forty-two graduate credits of which no more than six may be transferred from other accredited institutions.
2. A research project, an internship, and other types of field work are expected of each student.
3. A thesis is optional.

Students admitted to the Master of Science in Labor Studies degree program must meet the admission requirements of the Graduate School including the GRE examination. An undergraduate major in a social science or in business administration is a normal prerequisite to admission. Applicants for admission should ordinarily have completed introductory college courses in principles of economics, labor economics or labor problems, statistics, and sociology or psychology. Students may be admitted who are deficient in one or more of these courses, but such students will be required to remove any deficiencies without credit toward the M.S. degree. College-level courses that would be helpful, although not required, include industrial relations, political science, and history. A feature of the program requires all students to serve an internship normally between their first and second year and an assignment in field work with union, government agencies, etc.

Students are required to take the following courses in order to qualify for this degree: History 597 *History of the American Labor Movement,* Econ 741 *Collective Bargaining,* Labor Rel 610 *Seminar in Labor Relations,* and Labor Rel 605 *Practicum in Labor Research* and one Labor Law course. In addition students will be required to take three courses from a major module such as public sector bargaining, private sector bargaining, manpower, labor law, labor history, and labor education. Six other electives are also required to total the 42 graduate credits.

Required Courses marked with *.

Labor Relations and Research Center Course Offerings

All courses carry 3 credits unless otherwise specified.

***605 Practicum in Labor Research**
The practical aspects of labor relations with periodic seminars on methodology. Research projects of the Center are used for experience, as well as areas of particular concern to the students.
Mr. Sherry

***610 Seminar in Labor Relations**
Critical issues in the labor field, such as nature of work, "unemployment pockets," racial integration in unions. Base upon historical perspective, selected r search and field work. Taken in secor year. Mr. Friedma

664 The Government of Unions
The organization and structure unions, management of union activit and policies and practices of unions, i cluding administration, contract neg tiations, union organization and gri vance handling. Mr. Friedma

677 Labor Relations in the Public Secto
Labor relations for employees of fede al, state, and local government inclu ing but not limited to educational en ployees, professionals, and persons ant cipating careers in government. Speci attention to statutory requirements.
Mr. Friedman, Mr. Bloodswort

School of Business Administration Course Offerings

773 Labor Arbitration

779 Seminar in Industrial Relations

780 Organizational Behavior

***790F Employee Relations Law**

791A Equal Opportunity Law

Department of Economics Course Offerings

538 Economics and Health

541 Economic Security

542 Labor Law and Legislation

545 Human Resource Economics

547 Economics of the Labor Market

704 American Economic History

*741 Collective Bargaining

743 Wage Theory and Wage Relationships

745 Labor Dispute Settlement

746 Comparative Labor Movements

747 Manpower Development

Department of Psychology Course Offerings

660 Social Psychology

Department of Sociology Course Offerings

724 Social Stratification

Landscape Architecture and Regional Planning

26 Complex Organizations

30 Industrial Sociology

40 Social Gerontology

epartment of Political Science ourse Offerings

3 Public Personnel Administration

7 Massachusetts Politics

0 Public Administration

7 Comparative Public Policy

epartment of History Course fferings

636) History of the American Labor Movement

37) The City in the Modern United States

epartment of Industrial ngineering and Operations esearch Course Offerings

3 Methods of Measurement of Human Work

Graduate Faculty

E.Bruce MacDougall, *Professor of Regional Planning, and Head of the Department of Landscape Architecture and Regional Planning; Director of the Graduate Program in Regional Planning,* B.Sc.F., University of Toronto, 1961; M.Sc.F., 1962; Ph.D., 1967.

Nicholas T. Dines, *Associate Professor of Landscape Architecture and Director of the Graduate Program in Landscape Architecture,* B.S., Michigan State, 1966; M.L.A., Harvard, 1968.

Theodore S. Bacon, Jr., *Professor of City and Regional Planning,* B.A., Amherst, 1942; M.C.P., Massachusetts Institute of Technology, 1956.

Robert O. Brush, *Adjunct Associate Professor of Regional Planning, North Eastern Forestry Research Unit,* B.S., Massachusetts, 1966; M.L.A., 1968.

Walter H. Bumgardner, *Assistant Professor of Leisure Studies and Resources,* B.S., Southern Illinois, 1966; M.S., 1968; Ph.D., Texas A and M, 1974.

Carl A. Carlozzi, *Adjunct Associate Professor of Resource Planning,* B.S., Kent State, 1955; M.A., 1957; Ph.D., Michigan, 1965.

Chester D. Cramer, *Assistant Professor of Landscape Architecture,* B.S., Massachusetts, 1966; M.L.A., Harvard, 1968.

Hugh C. Davis, *Professor of Resource Planning,* B.S., Rollins College, 1950; M.S., University of Michigan, 1955; Ph.D., 1960.

Carlos E. Dominguez, *Visiting Lecturer in Regional Planning;* License in Law, Universidad Catolica de Chile 1958; Degree in Sociology, Latin American Faculty of Social Sciences, 1963; M.R.P., Harvard, 1966.

Madge W.O. Ertel, *Adjunct Associate Professor of Regional Planning;* B.A., Minnesota, 1953; M.A., Idaho, 1965; Ph.D., 1971.

Julius Gy. Fabos, *Professor of Landscape Architecture and Resource Planning;* B.S., Rutgers, 1961; M.L.A. Harvard, 1964; Ph.D., Michigan, 1973.

John H. Foster, *Adjunct Professor of Regional Planning and Professor of Agricultural and Food Economics,* B.S., Cornell, 1950; M.S., Purdue, 1951; Ph.D., Cornell, 1957.

Arnold Friedman, *Adjunct Professor of Landscape Architecture and Professor of Design,* B.F.A., Pratt Institute, 1953; M.S., Pratt Institute and New York University, 1960; Ph.D., Union Graduate School, 1976.

Barrie B. Greenbie, *Professor of Urban and Regional Planning,* B.S., Florida, 1953; M.S., Wisconsin, 1968; Ph.D., 1972.

Christopher M. Greene, *Visiting Lecturer in Environmental Design,* B.A., Wesleyan, 1969; M.L.A., Massachusetts, 1972.

Meir Gross, *Assistant Professor of Regional Planning;* B.S., Pennsylvania, 1964; M.R.P., 1972; M.A., 1977.

Tom S. Hamilton, Jr., *Associate Professor of Landscape Architecture,* B.F.A., Illinois, 1950; M.S., Massachusetts, 1952.

Benjamin Isgur, *Adjunct Professor of Resource Planning,* B.S., Massachusetts, 1933; M.S., 1935; Ph.D., 1940.

Spencer A. Joyner, Jr., *Visiting Lecturer in Regional Planning;* B.S., Rutgers, 1971; M.L.A., Massachusetts, 1973; M.R.P., 1976; Ph.D., 1978.

Robert L. Kent, Jr., *Associate Professor of Landscape Architecture,* B.S., Michigan State, 1957; M.L.A., 1959.

Gordon S. King, *Professor of Arboriculture and Park Administration,* B.S., Michigan State, 1941; M.S., Massachusetts, 1956.

Lawrence R. Klar, Jr., *Assistant Professor of Leisure Studies and Resources;* B.A., California State at San Jose, 1966; M.S., 1970; Ph.D., (Education) Oregon State, 1974.

John H. Martin, *Associate Professor of Architecture and Landscape Architecture,* A.R.I.B.A., Brighton College of Art, 1956; Certificate in Landscape Design, University College, London, 1960; M.L.A., Harvard, 1967.

Harold E. Mosher, *Professor of Landscape Architecture,* B.S., Massachusetts, 1942; B.L.A., 1947; M.L.A., 1957.

Gustave D. Olson, Jr., *Assistant Professor in Landscape Operations,* B.S., Massachusetts, 1968; M.R.P., 1972.

Rutherford H. Platt, *Adjunct Assistant Professor of Regional Planning, Assistant Professor of Geography and Regional Planning,* B.A., Yale, 1962; J.D., Chicago, 1967; Ph.D., 1971.

Paul N. Procopio, *Professor of Landscape Architecture and Associate Head of Department of Landscape Architecture*

and Regional Planning; B.S., Massachusetts 1941; M.S., 1954.

William E. Randall, *Professor of Leisure Studies and Resources;* B.S., Massachusetts, 1949; M.S., Wisconsin, 1951; Ph.D., 1952.

Andrew J.W. Scheffey, *Professor of Regional and Policy Planning,* B.A., Haverford, 1951; M.S., Michigan, 1952; Ph.D., 1958.

Jeanne E. Sherrow, *Associate Professor of Leisure Studies and Resources;* B.A., Wheaton College, 1951; M.S., George, 1956; Ph.D., Illinois, 1969.

Paul W. Shuldiner, *Adjunct Professor of Regional Planning and Professor of Civil Engineering.*

Joseph S.R. Volpe, *Associate Professor of Landscape Architecture;* B.S., California at Los Angeles, 1958; B.L.A., California at Berkeley, 1961; M.L.A., Harvard, 1964.

Ross S. Whaley, *Professor of Resource and Economic Planning,* B.S., Michigan, 1959; M.S., Colorado State, 1961; Ph.D., Michigan, 1969.

Degree Programs

At the graduate level, the department offers the Master of Landscape Architecture (M.L.A.) and Master of Regional Planning (M.R.P.) degrees.

LANDSCAPE ARCHITECTURE PROGRAM (M.L.A. DEGREE)

The landscape architecture program is designed for individuals interested in becoming professional landscape architects in private practice or in public agencies. Lectures and semiars are structured around a series of design studios which introduce the student to the functions, responsibilities and skills of the landscape architect. The program stresses the development of process for solving design-oriented problems of varying scales. Because the University is located in a rural but urbanizing area of the fringe of megalopolis, it is possible to provide a rich variety of real projects. The program is accredited by the American Society of Landscape Architects.

REGIONAL PLANNING PROGRAM (M.R.P. DEGREE)

The purpose of this program is to develop in the student an understanding of planning problems and processes, particularly as they occur in rural and urbanizing areas. The basic elements of the program are a set of courses and workshops in planning theories, techniques, and practices. In addition, courses are offered in two areas of special interest. The first is the physical, ecological and aesthetic aspects of landscape planning and design at the regional scale (reflecting the fact that the program had its origins in the landscape architecture program). The second is the political, administrative and institutional framework within which regional planning is carried out and plans implemented.

Degree Requirements

Master of Landscape Architecture
Master of Regional Planning

Both master's degree programs are so structured that persons with a variety of backgrounds can qualify for admission. The length of the program will vary with the student's background. For instance, a person with no background in landscape architecture would spend a minimum of six semesters while a person who graduated from a five-year accredited B.L.A. program might spend as little as three semesters in the M.L.A. program. Most candidates for the M.R.P. degree can expect to complete the requirements in two years. Both programs have a required core, but all students must meet with their academic advisers prior to the start of classes to design an explicit and suitable program.

The degree is conferred upon those graduate students who have satisfactorily met the following basic requirements:
1. Work covering four semesters in residence, unless otherwise arranged.
2. A minimum of three months spent in professional practice or research.
3. The earning of not fewer than 46 credits, 28 of which must consist of graduate level courses given within the Department of Landscape Architecture and Regional Planning, unless otherwise approved.
4. The preparation of a satisfactory thesis or terminal project and satisfactory completion of an oral examination on the same. (Basically, a terminal project is similar to a thesis in terms of scope of work required. However, the mode of presentation for the terminal project is much more flexible; e.g., large fold-out maps are not permitted in the presentation of a thesis but are permitted in a terminal project.)
5. Fulfillment of the requirements indicated in the appropriate curriculum guidelines which were in effect at the time of the student's first semester in the graduate program.
6. See additional requirements under the General Information Section of the *Bulletin.*

All courses carry 3 credits unless otherwise specified.

Landscape Architecture

601 Design Problems I
Emphasis on the development of skill in site design. Smaller-scale site-development problems, site analysis, program development, design process, and alternative methods of communication. Individual and team projects. Prerequisite, Env Des 335, 336 and 416. Mr. Diss
Credit, 5.

602 Design Problems II
Essentially a problem-solving course, drawing upon techniques from landscape design, physical planning, and architectural design. Problems of varying scale and complexity. Current real world problems emphasized. Prerequisite, Env Des 416. Mr. Main
Credit, 5.

603 Ecology and Physiography
Visual evaluation of plant associations as related to land form and environmental conditions. Field studies. Mr. Moser

607 Construction
Problems in landscape construction as related to general design. Mr. Volpe

608 Construction
Road alignment, computations, and advanced landscape construction.
Mr. Diss

616 Aspects of the Designed Environment
Topics related to the designed environment. The historical evolution of landscape design and urban design at periods in the history of western society to the present day. Mr. Main

618 Environment, Behavior and Design Evaluation
An interdisciplinary, problem-oriented course, reviewing concepts, techniques, and qualitative and quantitative approaches to design evaluation from both the behavioral sciences and the design professions. Mr. Friedmann

621 Landscape Planning
An introduction to landscape types, values, and landscape assessment tech-

niques. Landscape planning considerations for land use and management, and traditional as well as developing landscape planning procedures. Mr. Fabos

31 Advanced Design Projects
Advanced design projects.
Credit, 5. Mr. Procopio

37 Professional Practice
Professional office-management and procedures: ethics, commissions, contracts, responsibilities, specifications, and cost estimating. Mr. Kent

98Z Terminal Project
Credit, 8.

99 Master's Thesis
Credit, 8.

egional Planning

41 Water Resources Planning
Water resources planning as a part of environmental planning, the state of the art from technical and institutional viewpoints, the steps and components of the water resources planning process.

43 Land and the Development of Communities
Land and its use from ancient to modern times. Emphasis on the resource base and its importance as the intensity of land-use increases in the development of both rural communities and highly urbanized areas. Mr. Bacon

44 Metropolitan and Regional Planning
The growth and decentralization of cities and the formation of metropolitan areas. Planning as applied to the metropolitan complex and for various types of regions. Mr. Bacon

51 Planning in the Political Movement
Planning as a decision-making process, the attributes of the political and administrative environment within which planning takes place, and the implications of this environment for the planning process and the planner.
Mr. Dominguez

53 Resource Policy and Planning
Policy formation and the planning process at the local, state and regional levels; the role of Congress, the bureaucracy and citizen interests in policy formation; the interplay among forces of economics, technology, ecology and design in the determinization of policy goals and planning horizons. Mr. Scheffey

658 Environmental Administration
Alternative administrative arrangements for dealing with problems of environmental management and control at various levels of government.
Mr. Scheffey

665 Dynamics of Human Habitations
The complex interactions between man and the physical environment. Information and viewpoints from psychology, sociology, biology, ecology, ethology, art, architecture, and planning.
Mr. Greenbie

675 Projects in Planning I
Development of elementary planning and design methods, application in the planning of projects. Mr. Gross

676 Projects in Planning II
Development of advanced-level planning and design methods, application in the planning of projects. Prerequisite, Reg Pl 775. Mr. Dominguez

681 Regional Planning Studio
Preparation of regional-development plans based upon an interdisciplinary approach to the analysis and evaluation of regional problems and potentials.
Credit, 5. Mr. Carlozzi, Mr. Fabos, Mr. Foster

688 Urban and Regional Simulation and Gaming
Purposes and characteristics of models, simulations, and games. Brief examination of several recent urban and regional planning models, in-depth examination of two or three. The model-building process.

698 Terminal Project
Credit, 8.

699 Master's Thesis
Credit, 8.

Graduate Faculty

Emmon Werner Bach, *Professor and Head of the Department of Linguistics,* B.S., University of Chicago, 1949; M.A., 1955; Ph.D., 1959.

Edwin S. Williams, *Assistant Professor and Graduate Program Director,* A.B., Princeton, 1970; Ph.D., Massachusetts Institute of Technology, 1974.

Donald C. Freeman, *Adjunct Professor,* B.A., Middlebury, 1959; Ph.D., Connecticut, 1965.

Richard Kayne, *Associate Professor,* A.B., Columbia College, 1964; Ph.D., M.I.T., 1969.

Samuel Jay Keyser, *Adjunct Professor of Linguistics,* B.A., George Washington, 1956; Ph.D., Yale, 1962.

Terence Parsons, *Adjunct Professor of Philosophy and Linguistics.*

Barbara Hall Partee, *Professor of Linguistics and of Philosophy,* B.A., Swarthmore, 1961; Ph.D., Massachusetts Institute of Technology, 1965.

Alan S. Prince, *Assistant Professor,* B.A., McGill, 1971; Ph.D., Massachusetts Institute of Technology, 1975.

Thomas Roeper, *Associate Professor,* B.A., Reed, 1965; Ph.D., Harvard, 1973.

Elisabeth O. Selkirk, *Assistant Professor,* B.A., California at Berkeley, 1967; Ph.D., Massachusetts Institute of Technology, 1972.

Jean-Roger Vergnaud, *Assistant Professor,* M.A., l'Ecole Polytechnique, 1965; Ph.D., M.I.T., 1974.

The Department of Linguistics offers graduate work leading to the Ph.D. degree; a small number of students are also admitted for work leading to the M.A. degree. Students may concentrate their graduate work in any of the following areas: syntax, semantics, phonology, diachronic linguistics, psycholinguistics, formal foundations of linguistic theory, particular languages or language families, and prosody, metrics, and stylistics. Graduate training in the Department of Linguistics is strongly oriented toward preparing students to carry on individual creative research as early as possible in their graduate careers, and the Graduate Program is set up so as to maximize close student-faculty contact. The requirements for the M.A. and Ph.D. degrees listed below are

subject to periodic review; students are therefore advised to check with the Department for any changes in requirements.

THE MASTER OF ARTS DEGREE PROGRAM

Prerequisites for admission
A B.A. or B.S. degree in nearly any field of undergraduate study. The following undergraduate fields form a useful background to linguistics: anthropology, computer science, English, a foreign language or language family, logic, mathematics, philosophy, psychology, and sociology. A student may be required to make up deficiencies in undergraduate training before being admitted to regular status.

Program of study
Thirty credit hours of graduate work, in which the following courses would normally be included: Linguistics 601, Linguistics 602, Linguistics (502), and other core courses. Certain courses may be waived on the basis of previous work.

Examination and Thesis
A thesis is not required to complete the M.A. M.A. examinations will cover significant areas of graduate work in linguistics.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM

Prerequisites for Admission
A B.A., B.S., or M.A. degree.

Program of Study
Forty-eight credits of graduate work, at least half of which consist of 700-800-level linguistics courses.

Language requirement
There is no formal language requirement in the Ph.D. program. (However, students are generally expected to be able to read relevant journal articles in a foreign language.) Students are also strongly encouraged to carry out linguistic research on a foreign language as part of their graduate work.

Examinations
Ph.D. candidates must satisfy the general examination requirement by submitting two linguistic papers, embodying the student's original research, in two distinct areas of the discipline. A final oral examination is held after the doctoral dissertation is submitted.

Dissertation
A dissertation is required.

All courses carry 3 credits unless otherwise specified.

601 Intensive Introduction to Transformational Grammar
An intensive introduction to the concepts of transformational grammar. Survey in depth of problems and methods of research, with emphasis on different types of linguistic evidence and argument.
Credit, 6.

602 Introduction to the Study of an Unfamiliar Language
Investigation, with the aid of an informant, of the structure of an unfamiliar language and of specific analytical problems it presents. The relevance of these to universal grammar. Prerequisite, Ling 601. Mr. Bach

603 Generative Phonology
Introduction to generative phonology primarily for graduate students in linguistics. The formalism is developed and justified in response to increasingly complex sets of data. Prerequisites, Ling 601, 414. Mr. Prince, Ms. Selkirk

604 Syntactic Theory
Advanced survey of problems in the syntax of natural language encountered in attempting to characterize formally the notion of "grammar of a natural language." Prerequisite, Ling 601.
Mr. Bach, Ms. Partee, Mr. Prince, Ms. Selkirk

605 Diachronic Linguistics
Topics from traditional historical linguistics from the standpoint of transformational generative grammar: language change, relative chronology of sound changes, comparative method, internal reconstruction, and linguistic universals. Prerequisite, Ling 601.

606 Phonological Theory
The investigation of issues in current generative phonological theory. Students construct theoretical arguments using original evidence. Prerequisites; Ling 601, 603. Mr. Prince, Ms. Selkirk

607 Universal Grammar
Universal principles of natural language. Universal hypotheses made to date in the development of linguistic theory. Prerequisites, Ling 601, 602.
Mr. Bach, Mr. Williams

608 Structure of English
An intermediate-level survey of problems in the syntax of English, designed to follow directly from Ling 601. Prerequisite, Ling 601.
Mr. Bach, Ms. Partee, Mr. Will

699 Master's Thesis

710 Semantics and Generative Gramr
A comprehensive survey of sem problems in transformational-gen tive linguistics. Feature theory, gen tive semantics, performatives, inte tation of derived structures, sem theory of truth, interpretation and of human language.
Mr. Bach, Ms. Partee, Mr. Will

711 Psycholinguistics: Language Acquisition
The theoretical foundations and me dology of the study of child langu The relationship between languag quisition, the study of universal gr mar, and theoretical psychology. A perimental term project is custom Prerequisite, Ling 601. Mr. Ro

712 Psycholinguistics: The Perceptio of Linguistic Form
An introduction to psycholingui concentrating on the psychological ception of linguistic form. The psy logical reality of linguistic models perceptual and learning strategies. requisite, Ling 601. Mr. Ro

713 Linguistics and Literature
The application of modern linguisti literary analysis. Meter, style, and plication of text on the basis of ling tic criteria. Mr. Pr

714 Contemporary Phonetics
Phonetics and the theory of langu Universal phonetic alphabet, acou phonetics, perceptional phone articulatory phonetics and distinc features. Prerequisite, Ling 601 or mission of instructor.

715 Theory of Grammar
Survey and comparison of langu Structural linguistics, stratificati grammar, scale-and-category gr mar, transformational-genera grammar. The nature of linguistic dence. Prerequisite, Ling 601 or mission of instructor. Mr. B

716 Dialectology
The geographical and cultural va tions within a language; mapping dialects. Analysis and interpretation dialect materials.

726 Mathematical Linguistics
Topics relating mathematics, logic, computer science and linguistic theory. Typical topics: grammars and automata, formal models of transformational grammar; syntax-directed compilers. Prerequisites: Ling (409) or Math 200 or COINS 201. Mr. Bach, Mr. Prince Mr. Williams

740-748 Structure of Language Courses
The phonology and syntax of a language other than English. Emphasis on the application of current linguistic theory to analytical problems presented by that language and the testing of current theoretical hypotheses by reference to those problems. An informant is generally used. Within each of these courses, languages vary from year to year; any of them may be repeated for credit. Prerequisite, Ling 602, 603.

740 Structure of an African Language

741 Structure of an American Indian Language

742 Structure of an Indo-European Language

743 Structure of a Malayo-Polynesian Language

744 Structure of a Finno-Ugric Language

745 Structure of a Near Eastern Language

746 Structure of an Oriental Language

747 Structure of a South East Asian Language

748 Structure of a Non-Indo-European Language

750 Topics in Linguistic Theory
Treatment in depth of a selected area of linguistic theory. Topics vary. May be repeated for credit. Prerequisite, permission of instructor.

751 Topics in Phonology
Advanced, intensive work on specific phonological problems, or on the phonology of a single language or of a small group of languages. Prerequisites, Ling 603, 606.

752 Topics in Syntax
An intensive review of current research in syntactic theory, with emphasis on individual student research in syntactic theory. Prerequisite, Ling 604.

753 Topics in Semantics
Intensive investigation of topics in semantics. Topics vary from year to year. Prerequisite, Ling 710.

754 Topics in Diachronic Linguistics
An advanced seminar, mainly for those students who wish to specialize in language change. Investigation of the empirical claims made by current transformational theory in regard to language change. Prerequisites, Ling 603, 605.

790 Seminar
Current research topics and literature.

810 Research Tutorial: Syntax
Intensive investigation of a previously unexplored topic in syntax under close faculty supervision. Topic varies from year to year.

820 Research Tutorial: Phonology
Intensive investigation of a previously unexplored topic in phonology under close faculty supervision. Topic varies from year to year.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Geoffrey Boothroyd, *Professor and Chairman of the Manufacturing Engineering Program,* B.Sc., University of London, 1957; Ph.D., 1962; D.Sc., 1974.

Thomas P. Cullinane, *Associate Professor,* B.S., Boston University, 1966; M.S.I.E., Northeastern, 1968; S.M., Harvard, 1974; Ph.D., Virginia Polytechnic Institute, 1972.

William J. Duffy, *Associate Professor,* B.S., University of Michigan, 1955; M.S., 1969; Ph.D., 1971.

Laurence Murch, *Associate Professor,* B.S., Northeastern, 1965; M.S., Clarkson College of Technology, 1968; Ph.D., Massachusetts, 1972.

Corrado R. Poli, *Professor,* B.S., Rensselaer Polytechnic Institute, 1957; M.S., 1958; Ph.D., Ohio State, 1965.

William R.D. Wilson, *Professor,* B.S., Queens University of Belfast, 1963; Ph.D., 1967.

MASTER OF SCIENCE PROGRAM

The Master of Science program in Manufacturing Engineering is designed to meet the needs of those graduates in Mechanical or Industrial Engineering or in other disciplines who are interested in Manufacturing Engineering.

Manufacturing Engineers are those concerned with the planning and selection of methods of manufacture, the design of equipment for manufacture, the improvements of established manufacturing techniques and the development of new ones.

The program contains a common core and two alternative sections; the section depends on the student's background. Students already prepared in any of the required courses may substitute an appropriate elective course.

REQUIREMENTS

Common Core

All courses carry 3 credits unless otherwise specified.

ME 580 Automation and Manufacturing

ME 581 Machining and Machining Tools

Mathematics and Statistics

IE 755 Quality Control and Reliability Engineering

IE 757 Human Factors Design Engineering

IE/ME Project (or IE/ME 699 Thesis if desired)
Credit, 6.

3 Electives

Remaining Courses

(For students with an I.E. background)

ME 575 Manufacturing Processes

ME 576 Manufacturing Processes Laboratory
Credit, 1.

(For students with an M.E. background)

IE 590C Probability and Statistics for Engineers

Suggested Electives

ME 608 Physical Metallurgical Principles

ME 610 Mechanical Properties of Materials

ME 680 Metal Forming Processes

ME 641 Vibrations II

IE 754 Advanced Topics in Engineering Economy

IE 777 Manufacturing Control

Note
IE courses are listed under Industrial Engineering. ME courses are listed under Mechanical Engineering.

In addition all students must satisfy the Graduate School's requirements for the Master's Degree.

Graduate Faculty

Edward A. Connors, *Associate Professor and Head of the Department of Mathematics and Statistics,* B.A., Holy Cross, 1962; M.A., Massachusetts, 1964; Ph.D., Notre Dame, 1968.

Joseph Horowitz, *Associate Professor and Graduate Program Director,* B.S., Massachusetts Institute of Technology, 1962; M.S., Michigan, 1963; Ph.D., 1967.

Stephen I. Allen, *Associate Professor,* B.A., Amherst College, 1937; M.A., Harvard, 1946; Ph.D., Pittsburgh, 1963.

George S. Avrunin, *Assistant Professor,* B.S., Michigan, 1972; A.M., 1974; Ph.D., 1976.

Mary Katherine Bennett, *Associate Professor,* B.A., Albertus Magnus College, 1961; M.A., Massachusetts, 1965; Ph.D., 1966.

Joseph T. Borrego, Jr., *Associate Professor,* B.A., Florida, 1961; M.S., 1962; Ph.D., 1966.

Donald E. Catlin, *Associate Professor,* B.S., Pennsylvania State, 1958; M.A., 1961; Ph.D., Florida, 1965.

Eduardo H. Cattani, *Assistant Professor,* Universidad de Buenos Aires, Licenciado en Matemáticas, 1967; Ph.D., Washington, 1972.

Chan-Nan Chang, *Associate Professor,* B.S., National Taiwan University, 1963; Ph.D., Notre Dame, 1970.

Yu W. Chen, *Professor,* Ph.D., University of Goetingen, Germany, 1934.

Haskell Cohen, *Professor,* A.B., Omaha, 1942; S.M., Chicago, 1947; Ph.D., Tulane, 1952.

Thurlow A. Cook, *Associate Professor,* B.A., Rochester, 1961; M.A., Buffalo, 1963; Ph.D., Florida State, 1967.

Helen F. Cullen, *Professor,* A.B., Radcliffe, 1940; M.A., Michigan, 1944; Ph.D., 1950.

Ram C. Dahiya, *Associate Professor,* B.A., Panjab University, 1962; M.A., University of Delhi, 1964; M.S., Wisconsin, 1967; Ph.D., 1970.

David J. Dickinson, *Associate Professor,* B.A., Denver, 1942; A.M., Columbia, 1948; Ph.D., Michigan, 1954.

Murray Eisenberg, *Associate Professor,* A.B., Pennsylvania, 1960; A.M., 1962; Ph.D., Wesleyan, 1965.

Richard S. Ellis, *Associate Professor,* B.A., Harvard, 1969; M.S., New York, 1971; Ph.D., 1972.

Hans R. Fischer, *Professor,* University o Zurich, Matriculation, 1952, Ph.D., 195

John C. Fogarty, *Associate Professor,* B.A., Harvard, 1961; Ph.D., 1966.

David J. Foulis, *Professor,* B.A., Miami 1952; M.S., 1953; Ph.D., Tulane, 1958.

Michael A. Gauger, *Associate Professor,* B.S., Notre Dame, 1967; Ph.D., 1971.

Donald Geman, *Associate Professor,* B.A Illinois, 1965; Ph.D., Northwestern, 197

Alan Gleit, *Associate Professor,* B.A., Harvard, 1965; M.S., Stanford, 1967; Ph.D., 1969.

David R. Hayes, *Professor,* B.A., Duke, 1959; Ph.D., 1963.

David A. Hoffman, *Assistant Professor,* A.B., Rochester, 1966; M.Sc., Stanford, 1968; Ph.D., 1971.

Samuel S. Holland, Jr., *Professor,* B.A. Massachusetts Institute of Technology, 1950; M.S., Chicago, 1952; Ph.D., Harvard, 1961.

Hui-Kuang Hsieh, *Assistant Professor,* B.S., Fu-Jen Catholic University, 1967; M.S., National Taiwan University, 1970; M.A., Columbia, 1972; Ph.D., Wisconsin 1976.

James E. Humphreys, *Professor,* B.A., Oberlin, 1961; M.A., Yale, 1964; Ph.D., 1966.

Henry G. Jacob, *Professor,* B.E., Yale, 1943; M.E., 1947; Ph.D., 1953.

Melvin Janowitz, *Professor,* B.A., Minnesota, 1950; Ph.D., Wayne State, 1963.

Aroldo G. Kaplan, *Assistant Professor,* Licenciado, University of Cordoba, 1964; Ph.D., Washington, 1971.

Eleanor Killam, *Assistant Professor,* B.S New Hampshire, 1955; M.S., 1956; Ph.D Yale, 1961.

George H. Knightly, *Professor,* B.S., Tufts, 1956; M.S., Stanford, 1962; Ph.D. 1965.

Ramesh M. Korwar, *Assistant Professor,* B.A., Karnatak, 1957; M.A., 1959; M.S., Florida State, 1969; Ph.D., 1972.

Hsu-Tung Ku, *Associate Professor,* B.S., Taiwan Normal University, 1961; M.S., Tulane, 1964; Ph.D., 1967.

ei-Chin Ku, *Associate Professor,* B.S., iiwan Normal University, 1961; M.S., racuse, 1964; Ph.D., Tulane, 1967.

ayas G. Kundert, *Professor,* Diploma, T.H., Zurich, 1945; Ph.D., 1950.

rraine D. Lavallee, *Associate Professor,* B., Mount Holyoke, 1953; M.A., assachusetts, 1955; Ph.D., Michigan, 62.

ng-Sun Liu, *Professor,* B.S., National iiwan University, 1954; M.A., Penn- vania, 1961; Ph.D., 1963.

nest G. Manes, *Associate Professor,* S., Harvey Mudd, 1963; Ph.D., esleyan, 1967.

rry N. Mann, *Professor,* B.A., Penn- vania, 1955; M.S., 1956; Ph.D., 1959.

allace S. Martindale, III, *Professor,* A., Amherst, 1952; M.A., Pennsylvania, 54; Ph.D., 1958.

ter Norman, *Associate Professor,* B.A., rvard, 1965; Ph.D., Pennsylvania, 1971.

il B. Oakland, *Professor,* B.A., Saskat- ewan, 1933; M.A., Minnesota, 1939; .D., Aberdeen, 1956.

arles H. Randall, *Professor,* B.S.M.E., lytechnic Institute of Brooklyn, 1951; .S., Pittsburgh, 1957; Ph.D., Rensselaer lytechnic Institute, 1966.

len E. Reed, *Associate Professor,* B.A., nzaga, 1962; M.A., Colorado, 1964; .D., 1966.

y S. Rosen, *Assistant Professor,* B.A., rvard, 1970; Ph.D., Princeton, 1974.

alter A. Rosenkrantz, *Professor,* B.S., icago, 1958; M.S., Illinois, 1959; Ph.D., 63.

unas Rudvalis, *Associate Professor,* S., Harvey Mudd, 1965; M.A., Dart- uth, 1967; Ph.D., 1969.

nald F. St. Mary, *Associate Professor,* S., McNeese State, 1962; M.A., Kansas, 64; Ph.D., Nebraska, 1968.

rthold Schweizer, *Professor,* B.S., assachusetts Institute of Technology, 51; M.S., Illinois Institute of chnology, 1954; Ph.D., 1956.

ward C. Shaw, *Assistant Professor,* S., Massachusetts Institute of chnology, 1968; M.A., Michigan, 1971; .D., 1975.

n L. Sicks, *Associate Professor,* B.A., diana, 1961; Ph.D., 1965.

Morris Skibinsky, *Professor,* B.S., City College of New York, 1948; M.A., North Carolina, 1951; Ph.D., 1954.

Doris S. Stockton, *Associate Professor,* B.Sc., Douglass College in Rutgers University, 1945; M.S., Brown, 1947; Ph.D., 1959.

Marshall H. Stone, *Professor,* B.A., Harvard, 1922; M.A., 1924; Ph.D., 1926.

Wayman L. Strother, *Professor,* B.S., Alabama State, 1943; M.S., Chicago, 1949; Ph.D., Tulane, 1951.

Jin Chen Su, *Professor,* B.S., National Taiwan University, 1954; Ph.D., Pennsylvania, 1962.

Robert W. Wagner, *Professor,* A.B., Ohio, 1934; M.A., Michigan, 1935; Ph.D., 1937.

Ju-Kwei Wang, *Professor,* B.S., National Taiwan University, 1954; Ph.D., Stanford, 1960.

Franklin A. Wattenberg, *Associate Professor,* B.S., Wayne State, 1964; M.S., Wisconsin, 1965; Ph.D., 1968.

George W. Whaples, *Professor,* A.B., Knox College, 1935; M.A., Wisconsin, 1937; Ph.D., 1939.

Floyd L. Williams, *Assistant Professor,* B.S., Lincoln, 1962; M.A., Washington, 1965; Ph.D., 1972.

The Department of Mathematics and Statistics offers programs leading to both the Master of Arts and Doctor of Philosophy degrees. These programs allow the student considerable flexibility in selecting a course of study which emphasizes a broad knowledge of mathematics and its applications as well as concentration within one or more of the areas of algebra, analysis, applied mathematics, probability and statistics, and topology. A detailed description of degree requirements may be obtained from the departmental Graduate Program Director.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM

Admission

Applications for admission to the Ph.D. program are screened by a departmental committee, which bases its recommendations for admissions and financial aid on the applicant's undergraduate record, letters of recommendation, GRE scores, and other data. Admission is highly selective, and there is no minimal set of courses or grades that will guarantee admission. Applicants are encouraged to submit additional data on their mathematical training, such as texts used and topics covered in courses, details of any honors projects or individual reading, etc.

Course requirements

The doctoral aspirant must successfully complete 36 credits in graduate courses, including: (a) year-long courses in three of the basic areas of algebra, analysis, applied mathematics, statistics-probability, and topology, together with a semester course in each of the other two basic areas (courses in other departments may be approved to satisfy the applied mathematics requirement); (b) a semester of complex analysis; (c) a "special" course (from among those so designated each semester) whose purpose is to pose and solve a specific, often classical, problem by developing the requisite mathematical tools, but not necessarily in their most general or finished form.

Qualifying Examination

Twice each year written examinations are offered in each of the areas of algebra, analysis, applied mathematics, probability/-statistics, and topology. To qualify for a Ph.D., a student must pass three of these examinations. These may be taken one, two, or three at a time, and must all be passed by the beginning of the sixth semester (fifth for students entering with a Master's degree). Students should consult the Director of Graduate Affairs for exact information on this matter.

Preliminary Comprehensive Examination

Once the student has passed the Qualifying Examination, to be admitted to Ph.D. candidacy he or she must pass the Preliminary Comprehensive Examination. This examination, which is oral, is based on material dealing with a central theme related to the student's prospective area of concentration.

Foreign language requirement

For the Ph.D. the department requires a reading knowledge of two of the following languages: French, German, and Russian at the Graduate School's level 3—sufficient to understand mathematical or statistical journal articles in the language. The requirement in each of the two languages is satisfied by passing a written examination offered by the department each year.

As a requirement for the Ph.D. degree, all students in the doctoral program are expected to gain experience in communicating their subject by participating in the instruc-

tion of students. This requirement may be satisfied by performing the duties ordinarily assigned to a Teaching Assistant or Teaching Associate, but the precise kind and extent of activities necessary to satisfy it will be determined on an individual basis for each doctoral student.

Each year a variety of advanced seminars, including joint seminars with other departments or with nearby institutions, are available for credit. Students are encouraged to attend the departmental Colloquium, which meets regularly and where visiting speakers present topics of current research.

THE MASTER'S DEGREE PROGRAM

An entering Master's candidate should normally have completed at least 18 semester credit hours in undergraduate mathematics and statistics beyond the calculus. A one-year course in linear and modern algebra and a one-year course in advanced calculus would be highly desirable.

Within the Master's program the department offers a Mathematics Option and a Statistics Option. Differences in the Master's degree requirements under the two options are stated below.

To earn a Master's degree a student must:

1. Complete 30 credit hours, at least 18 of which must be in courses in the department numbered 600 or above. Any course outside the department or numbered below 600 must have departmental approval to be included in these 30 credit hours. The student must earn an average grade of B, and may include at most 6 credit hours with a grade below B in the courses presented to satisfy this requirement. Within the Mathematics Option these courses must include one "special" course (see Ph.D. course requirement (c) above) and the first semester of the basic course in each of three of the areas of algebra, analysis, applied mathematics, statistics-probability, and topology. Within the Statistics Option these courses must include Statistics (706). 12 additional credit hours of courses in probability and statistics numbered 600 or above, the first semester of the basic course in each of two of the areas of algebra, analysis, applied mathematics and topology, and a 3-credit-hour project in statistics.

2. Pass the Master's examination. Every year the department offers a written examination at the Master's level in each of the basic areas. To pass the Master's examination under the Mathematics Option the student must either pass the examinations in three of the areas of algebra, analysis, applied mathematics, statistics-probability, topology, or else pass the Ph.D. written Qualifying Examination. To pass the Master's examination under the Statistics Option the student must pass a series of two examinations in probability and statistics.

There is neither a thesis requirement nor a foreign language requirement for the Master's degree. A Master's candidate who has not completed the degree requirements by the end of his second year will ordinarily not be permitted to re-register in the department.

Graduate students in other departments should also consult the *Undergraduate Course and Faculty Directory* for mathematics courses which may carry graduate credit in their own department or which in any event may be of interest, especially those in applied mathematics, probability and statistics.

All courses carry 3 credits unless otherwise specified.

Mathematics Courses

511 Theory of Group Representation
Abstract groups, subgroups, quotient groups, homomorphisms, representations, irreducible representations, characters, orthogonality relations. Intended for students qualified to study algebra at a significantly higher level of abstraction than Math 411. Prerequisites, Math 235 and permission of Department.

512 Advanced Topics in Algebra
Topics chosen from rings, integral domains, modules over principal ideal domains, field extensions, and Galois theory. Prerequisite, Math 511 or Math 411 and permission of instructor.

525 Introductory Modern Analysis I
Basic topology of Euclidean n-space and metric spaces, convergence of sequences and series, continuous functions and their local and global properties. Prerequisites, Math 233, 234 and Math 235.

526 Introductory Modern Analysis II
Continuation of Math 625. Differentiation. Riemann integration, sequences and series of functions, functions of several variables. Prerequisite, Math 525.

531 Ordinary Differential Equations
First and second-order equations, ...stence and uniqueness theorems, syst...ns of equations. Prerequisites, Math ...3, 234, and Math 235.

532 Topics in Ordinary Differential Equations
Topics to be chosen from: Sturm-L...ville Theory, series solutions, stab...ty theory and singular points, nume...al methods, transform methods. Prere...site, 531 or 431.

534 Introduction to Partial Differenti... Equations
Classification of second-order pa...al differential equations, wave equat...n, Laplace's equation, heat equation, p...aration of variables. Prerequis...s, Math 233, 234, 235, and Math 531

545 Linear Algebra for Applied Mathematics
Introduction to vector spaces, in...er products, and matrices, linear tran...rmations, tensors, determinants, or...tation, the spectral theorem for nor...al operators, complexification, real ...rmal operators, and exterior alge...a. Prerequisite, Math 235.

546 Vector and Tensor Analysis with Applications
Continuation of Math 545. Frechet ...rivatives, the inverse and implicit f...tion theorems, vector and tensor fi...ls, exterior differentiation, differe...al forms, differentiable manifolds. Pr...quisites, Math 545 and Math 233, ...

563 Differential Geometry
Differential geometry of curves and ...faces in Euclidean 3-space using ve...r methods. Prerequisites, Math 233, ... and Math 235 or permission of inst...tor.

565 Topology I
Introduction to the topology of me...c spaces and topological spaces: met...c topologies, continuity, connectedn..., compactness. Prerequisite, Math 42... Math 525 or permission of instructo...

566 Topology II
Introduction to the geometric ideas ...hind algebraic topology. Polyhe...al manifolds, Jordan curve theorem, ...mology mod 2, classification of surfa...s, Brouwer fixed-point theorem. Pr...quisites, Math 411 or 511 and M... 565.

1 Set Theory
Basic properties of sets. Ordered sets. Complete ordered sets. Well-ordered sets. Cardinal and ordinal numbers. Axiom of choice, well-ordering theorem, and Zorn's lemma. Cardinal arithmetic. Prerequisite, Math 235 or permission of instructor.

1 Introduction to Mathematical Logic and Model Theory
Topics include: Propositional and Predicate Calculi; introduction to First Order Model Theory including Godel's Completeness Theorem and Upward and Downward Lowenheim-Skolem Theorems; and Godel's Incompleteness Theorem. Some applications; for example, Turing Machines and the Halting Problem or Nonstandard Analysis. A certain level of mathematical sophistication and maturity is assumed.

1 Algebra I
Linear algebra via the theory of modules over principal ideal rings; Jordan deomposition, canonical forms, spectral theorem. Tensor products, symmetric and exterior algebras. Determinants, Cayley-Hamilton theorems, application to geometry.

2 Algebra II
Either topics from field theory, Noetherian rings, and applications, or topics from rings with chain conditions, groups, and group representations. Prerequisite, Math 611 or equivalent.

1 Complex Analysis
Complex number field, elementary functions, holomorphic functions, integration, power and Laurent series, harmonic functions, conformal mappings, applications.

2 Intermediate Complex Analysis
Topics from intermediate complex analysis. Prerequisite, Math 621 or equivalent.

3 Real Analysis I
General theory of measure and integration and its specialization to Eculidean spaces and Lebesque measure; modes of convergence, L^P-spaces, product spaces, differentiation of measures and functions, signed measures, Radon-Nikodym theorem.

4 Real Analysis II
Continuation of Math 623. Introduction to functional analysis; elementary theory of Hilbert and Banach spaces, functional analytic properties of L^P-spaces, applications to Fourier series and integrals; interplay between topology and measure, Stone-Weierstrass theorem, Riesz representation theorem. Further topics depending on instructor.

635 Lattice Theory I
Partially ordered sets, lattices, modular lattices, Boolean algebras, representation theory for lattices. Prerequisite, Math 412.

636 Lattice Theory II
Continuation of Math 735. Stone's representation theorem for Boolean algebras. Loomis' representation theorem for Boolean sigma-algebras, theory of orthomodular lattices and their coordinating Baer*-semigroups. Prerequisite, Math 635.

645,646 (I) (II) Advanced Applied Mathematics
Topics from engineering and mathematical physics presented rigorously and with free use of abstract mathematical concepts and modern mathematical machinery. Prerequisite, permission of instructor.
Credit, 3 each semester.

671 Topology I
Compactness, local compactness, compactification, products, quotients, separation axioms, theory of retracts, connectedness, continua, path connectedness, local connectedness, fundamental group, covering spaces.

672 Topology II
Introduction to the topology and geometry of differentiable manifolds. Prerequisite, Math 671.

673 Algebraic Methods in Topology
Topics from homotopy, homology, and cohomology with applications. Prerequisite, Math 671.

699 Master's Thesis

701,702 (I) (II) Topics in Algebra
Basic topics in algebra. Prerequisite, permission of instructor.
Credit, 1-3 each semester.

703,704 (I) (II) Topics in Geometry
Basic topics in geometry. Prerequisite, permission of instructor.
Credit, 1-3 each semester.

705,706 (I) (II) Topics in Analysis
Basic topics in analysis. Prerequisite, permission of instructor.
Credit, 1-3 each semester.

711,712 (I)(II) Advanced Algebra
Advanced topics in algebra. Prerequisite, permission of instructor.
Credit, 3 each semester.

713 Introduction to Algebraic Number Theory
Valuations, rings of integral elements, ideal theory in algebraic number fields of algebraic functions of one variable, Dirichlet-Hasse unit theorem and Riemann-Roch theorem for curves. Prerequisite, Math 611-612 or equivalent.

714 Quadratic Forms
Quadratic spaces, orthogonal group, representation and equivalence of quadratic forms over arithmetic fields, Hasse-Minkowski theorem, integral theory of quadratic forms over arithmetic domains, genus, spinor genus. Prerequisites, Math 611-612 and 713 or equivalents.

715,716 (I) (II) Class Field Theory
Local class field theory, residues in fields of algebraic functions, global class field theory, generalized local class field theory, application to simple algebras and quadratic forms. Prerequisite, Math 713.
Credit, 3 each semester.

721,722 (I) (II) Advanced Complex Analysis
Advanced topics in complex analysis. Prerequisite, permission of instructor.
Credit, 3 each semester.

725 Introduction to Functional Analysis
Banach and Hilbert spaces, continuous linear operators, spectral theory, Banach algebras. Prerequisites, Math 623 or 705.

726 Functional Analysis
Topics from Banach algebras and representation theorems for Banach algebras; von Neumann algebras; analysis in Banach algebras, spectral theory; analytical theory of semi-groups; vector lattices, Krein-Milman theorem.

731,732 (I) (II) Introduction to Partial Differential Equations
Equations in mathematical physics, types of systems, characteristic manifolds, questions of uniqueness and existence, generalized derivatives. Prerequisite, Math 526.
Credit, 3 each semester.

735 Advanced Lattice Theory I
Advanced topics chosen from the fields

of orthomodular lattices, quasi-orthomodular lattices, continuous geometries, complemented modular lattices, and their representation theories. Prerequisite, Math 636.

736 Advanced Lattice Theory II
Continuation of Math 735. One or more of the topics of Math 735 examined in detail up to the present frontiers of knowledge. Prerequisite, Math 735.

741,841 (I) (II) Recent Developments in Statistics
Content varies with instructor. Possible topics include: inference in stochastic processes, decision processes, spectral analysis of stationary processes, geometry of moment spaces, sequential procedures, optimal stopping. Prerequisites, Stat 606,607, Math 511 and 525 or equivalent.
Credit, 3 each semester.

753,754 (I) (II) Topological Semigroups
Topics from ideals in semigroups. Green's relations, Rees-Suschkewitsch theorem, semigroup structures on continua, homomorphisms, irreducible semigroups, actions by semigroups, and other topics of current interest. Prerequisites, Math 671-672 or equivalent.
Credit, 3 each semester.

781 Algebraic Topology I
Homotopy theory, simplicial and Cech homology theories. Prerequisites, Math 617, 611.

782 Algebraic Topology II
General homology theory, universal coefficient theorems, singular homology theories, ring structure in cohomology theories, spectral sequences, Steenrod operations. Prerequisite, Math 781.

785,786 (I) (II) Differential Topology
Differential manifolds, immersions and imbeddings; Whitney approximation theorems; vector bundles; tangent and normal bundles; characteristic classes and cobordism. Prerequisite, Math 672 and 781.
Credit, 3 each semester.

796,896 (I) (II) Directed Readings
Credit, up to 6.

803 Advanced Topics in Algebraic Topology
Presheaves and sheaves, sheaf cohomology, Cech cohomology, applications; deRham theorem; spectral sequences. Prerequisite, Math 782.

823,824 (I) (II) Advanced Analysis
Advanced topics in analysis. Prerequisite, permission of instructor.
Credit, 3 each semester.

831,832 (I) (II) Advanced Ordinary or Partial Differential Equations
Advanced topics chosen from dynamic systems, differential operators with constant coefficients, hyperbolic and elliptic operators, non-linear equations, asymptotic expansions. Prerequisite, permission of instructor.
Credit, 3 each semester.

851,852 (I) (II) Advanced Probability I and II
Probability theory from a measure-theoretic viewpoint. The general theory of conditioning, martingale theory, Markov processes, general central limit problem. Advanced topics, *e.g.* potential theory, ergodic theory.

861,862 (I) (II) Advanced Geometry
Advanced topics in geometry.
Credit, 3 each semester.

871,872 (I) (II) Advanced Topology
Advanced topics in topology.
Credit, 3 each semester.

881,882 (I) (II) Advanced Pure and/or Applied Mathematics
Credit, 3 each semester.

891 (I) Problem Seminar
Introduces beginning graduate students to the methods of mathematical research.
Credit, 1 each semester.

892,893,894,895 (I) (II) (III) (IV) Research Seminar
Presentation by the advanced graduate student of research articles, perhaps his own research.
Credit, 1 each semester.

899 Doctoral Dissertation
Credit, 10.

Statistics Courses

605,606 (I) (II) Probability Theory
Sample spaces, probability measures, combinatorics, random variables, distributions, independence, moment generating functions. Measures, expectations, convolutions, laws of large numbers, uniqueness, and Radon-Nikodym theorems. Prerequisite, Math 231 or equivalent. Prerequisite or corequisite, Math 525 or equivalent.
Credit, 3 each semester.

607 A First Course in Mathematical Statistics
Distribution theory, maximum li hood estimation, confihodence in vals, sufficiency, point estimation, potheses testing. Bayesian infere decision theory, nonparametric st tics, survey of special topics. Prere site, Stat 605.

701,702 (I) (II) Statistical Test and Decision Procedures
Statistical decision theory, theory o hypothesis testing, optimal tests, non- rametric procedures. Prerequisites, 607; Math 511 and 525 or equivale
Credit, 3 each semester.

705,706 (I) (II) Advanced Mathematic Statistics
Characteristic functions, central l theorems, matrix algebra and m variate analysis, bounds for the iance. Sufficiency, completeness, ciency, maximum likelihood, squares, tests, interval estimation, tiple comparisons. Prerequisites, 606 and 607.
Credit, 3 each semester.

708 Applied Stochastic Models and Methods
Formulation of probabilistic model natural phenomema; basic properti the most common types and appl tions to problems occurring in var branches of science, engineering social science. Content depends composition of class; e.g. Markov cesses, queueing theory, regenera phenomena (renewal theory); statio processes (time series), predict filtering, and control; stochastic ferential and integral equations; G sian noise processes; Brownian mot

725,726 (I) (II) Estimation Theory and Hypothesis Testing
Maximum likelihood, types of esti tion, properties of estimators, 2 sam problem, k sample problem. Prere sites or corequisites, Stat 462 and Math 511 and 525 or equivalent.
Credit, 3 each semester.

751 Random Processes I
Foundations of the theory of ran processes; survey of various special cesses and applications, *e.g.*, Ma processes, random walks, queuing renewal processes, Brownian mot diffusion processes, stationary cesses. Prerequisites, Math 623 or 605,606 or permission of instructor.

52 Random Processes II
Topics of current interest in random processes, *e.g.* Markov processes, martingales, stationary processes, statistical analysis of time series, application of random processes. Prerequisite, Stat 751.

Graduate Faculty

Corrado R. Poli, *Professor and Head of the Department of Mechanical Engineering,* B.S., Rensselaer Polytechnic Institute, 1957; M.S., 1958; Ph.D., Ohio State, 1965.

Robert H. Kirchhoff, *Associate Professor and Graduate Program Director,* B.M.E., Santa Clara, 1961; M.S., Arizona, 1963; Ph.D., California at Berkeley, 1969.

Lawrence L. Ambs, *Assistant Professor,* B.S., Minnesota, 1960; M.S., 1962; Ph.D., 1967.

Maurice E. Bates, *Professor,* B.S.E., Michigan, 1934; M.S., Massachusetts Institute of Technology, 1935; Ph.D., 1937.

Geoffrey Boothroyd, *Professor,* B.S.E., University of London, 1957; Ph.D., 1962; D.Sc., 1974.

Duane E. Cromack, *Associate Professor,* B.S., Massachusetts, 1959; M.E., Yale, 1961; Eng.D., Rensselaer Polytechnic Institute, 1968.

F. Erskine Crossley, *Professor,* B.A., Cambridge, 1937; M.A., 1941; Eng.D., Yale, 1949.

John R. Dixon, *Professor,* B.S., Massachusetts Institute of Technology, 1952; M.S., 1953; Ph.D., Carnegie Institute of Technology, 1961.

William P. Goss, *Associate Professor,* B.S., Connecticut, 1961; M.S., 1962; Ph.D., 1967.

Karl Jakus, *Associate Professor,* B.M.E., Wisconsin, 1963; M.S., California at Berkeley, 1965; Ph.D., 1968.

Jon G. McGowan, *Professor,* B.S., Carnegie Institute of Technology, 1961; M.S., Stanford, 1962; Ph.D., Carnegie Institute of Technology, 1965.

Laurence Murch, *Associate Professor,* B.S., Northeastern, 1965; M.S., Clarkson College of Technology, 1968; Ph.D., Massachusetts, 1972.

Carl W. Nelson, *Associate Professor of Metallurgy,* B.S., Case Institute of Technology, 1956; M.S., 1963; Ph.D.,1965.

Kenneth G. Picha, *Professor,* B.S., Georgia Institute of Technology, 1946; M.S., 1948; Ph.D., Minnesota, 1957.

John E. Ritter, *Professor of Materials Engineering,* B.S., Massachusetts Institute of Technology, 1961; M.S., 1962; Ph.D., Cornell, 1966.

G. Albert Russell, *Associate Professor,* B.S., Massachusetts Institute of Technology, 1958; M.S., Arizona State, 1961; Ph.D., Connecticut, 1967.

Edward Sunderland, *Professor,* B.S.M.E., Massachusetts Institute of Technology, 1954; M.S.M.E., Purdue, 1956; Ph.D., 1958.

William R. D. Wilson, *Professor,* B.S., Queens University of Belfast, 1963; Ph.D., 1967.

George E. Zinsmeister, *Associate Professor,* B.M.E., Rensselaer Polytechnic Institute, 1961; M.S., Purdue, 1963; Ph.D., 1965.

The Master of Science program in Mechanical Engineering is designed to meet the needs of students planning either doctoral study or professional employment.

Thirty credit hours are required, 6 of which are to be earned by taking one course from any two of the following groups: Group A: 601 Thermodynamics and 607 Advanced Fluid Mechanics; Group B: 630 Advanced Solid Mechanics and 640 Advanced Dynamics; Group C: 608 Physical Metallurgical Principles and 680 Metal Forming Processes.

Six credits of Mathematics are required, and a thesis or project of from 6 to 9 credits is normally required. The remaining credits are electives for specialization in such areas as heat transfer, fluid mechanics, thermodynamics, dynamics and vibrations, machine or system design, propulsion, aerodynamics, biological processing, and metallurgy or material processing. In addition, all students must satisfy the Graduate School's requirements for the Master's degree.

The Master of Science program in Manufacturing Engineering is available for those students who are more interested in the manufacturing aspects of Mechanical engineering.

The Doctor of Philosophy program in Mechanical Engineering imposes no minimum credit hours but each course program must include the following elements:

1. Advanced and comprehensive study in the fundamentals of mechanical engineering including appropriate science courses in mathematics, physics, and chemistry;

2. Intensive study of a special discipline within mechanical engineering (for example, heat transfer, mechanics, gas or fluid dynamics, design, etc.), including study of the current literature;

3. Either intensive study of a second special

discipline within mechanical engineering, including study of the current literature, or study in another discipline. The selection of this second discipline and the program of study is subject to approval by the student's Guidance Committee and by the Mechanical Engineering Graduate Committee but it is the intent of the option to allow and even encourage wide latitude in the selection of fields from engineering, science, social science, arts, or humanities.

All courses carry 3 credits unless otherwise specified.

515 Aerodynamics
Application of theoretical fluid mechanics to aerodynamics including topics of theory of lift; finite wing theory; the effects of compressibility and viscosity on lift and drag; slender body theory. Prerequisite, 340 or equivalent.
Mr. Cromack

516 Stability and Control of Vehicles
Introduction to the general concepts of stability of motion. The stability of air, space, and ground vehicles. Prerequisite, 315 or permission of instructor.
Mr. Cromack

ME560 Vehicle Power Plants
Analysis of vehicle performance and power plant requirements. The performance of reciprocating gasoline and diesel engines in terms of the physical processes involved. Alternative power plants for vehicles, and the environmental impact of each of these plants. Air pollution aspects and fuel efficiency of vehicles are emphasized. Prerequisite, ME330 Mr. Ambs

ME570 Solar Energy Conversion
Emphasis on thermal conversion systems. Topics include solar radiation fundamentals, heat transfer applied to solar systems, energy storage and overall systems designs and economics. Applications covered in detail include flat plate and focusing solar collectors, solar heating and cooling systems, and other current solar systems. Mr. McGowan

575 (535) Manufacturing Processes
Introduction to casting, forming, cutting, and joining processes for metals and plastics. Includes the economics, relative advantages and limitations of the processes. Prerequisites, 210, 211.
Mr. Poli, Mr. Boothroyd

576 Manufacturing Processes Laboratory
Experiments, workshops and short experimental projects based on the topics covered in 575. Emphasis on experimental technique and presentation of results. Mr. Murch

580 Automation in Manufacturing
In-depth study of the automatic assembly process including feeding and orienting of parts and the performance and economics of assembly systems. Design of parts and products for automatic assembly. Mr. Boothroyd

581 Machining and Machine Tools
Fundamentals of metal cutting including temperatures generated and dynamic stability of the cutting process. Lubrication and wear of cutting tools and cutting conditions for maximum production or minimum cost. Design of machine tools. Numerical control and economics of machine tools.
Mr. Boothroyd

586 Lubrication, Friction, and Wear
Hydrodynamic and boundary lubrication, adhesive, abrasive and hysteritic friction and wear processes. Applications in the design of bearings, seals, gears and other systems involving surfaces in relative motion. Prerequisite, graduate standing or permission of instructor. Mr. Wilson

588 Metal Forming Processes
The theory of plasticity including hield criteria and flow laws. Upper and lower bound methods and their application to the analysis of selected metal forming processes. Practical problems encountered in metal forming. Prerequisite, ME 575 (535). Mr. Wilson

601 Thermodynamics
Review of classical thermodynamics and conventional energy conversion systems. Introduction to kinetic theory of gases, and statistical thermodynamics. Selected topics in chemical thermodynamics. Prerequisite, graduate standing or permission of instructor.
Mr. Ambs, Mr. McGowan

603 Advanced Mechanical Engineering Analysis I
Methods of analysis of mechanical engineering problems. Modular structure allows students to choose topics appropriate to their background and specific area of study. For current offerings contact the Mechanical Engineering Department Office. Prerequisite, graduate standing or permission of instructor.

604 Advanced Mechanical Engineering Analysis II
Continuation of 603. Prerequisite, 6

607 Advanced Fluid Mechanics
Fundamentals of fluid mechanics i cluding kinematics, the stress tens and the basic equations from the c servation of mass, momentum, a energy. The dynamics of an invis fluid and vortex motion. ME 607 a 707 form a one-year comprehens course in fluid mechanics. Prerequisi 340 or equivalent.
Mr. Jakus, Mr. Kirchh

608 Physical Metallurgical Principles
Principles underlying the structure a behavior of metals. Equilibrium a non-equilibrium phase relations in o and two-component systems. Kinetics diffusion and nucleation. Phase tra formations, heat treatment, and h denability. Prerequisite, gradua standing or permission of instructor.
Mr. Nelson, Mr. Rit

609 Mechanical Properties of Materials
Dislocation theory and its application the mechanical properties of non-c ganic materials. Prerequisite, 608 equivalent. Mr. Nelson, Mr. Rit

630 Advanced Solid Mechanics
A unified treatment of the analysis solids. Consideration of continuity, m chanical energy, stress and strain. A plication to elasticity, thermoelasticit and plasticity. Prerequisite, gradua standing or permission of instructor.

640 Advanced Dynamics
Advanced dynamics of particles, sy tems of particles, variable mass syster and rigid bodies. Gyroscopic motio Rotating and accelerating frames of r ference. Use of energy methods, L Grange's equations. Hamilton's prin ple, and Eulerian angles in engineeri problems. Prerequisite, graduate stan ing or permission of instructor.
Mr. P

641 Vibrations II
Vibration of discrete systems with mar degrees of freedom, normal modes an frequencies, approximate methods. I troduction to nonlinear vibration Nonlinearities in inertia, damping, r storing forces, etc. Singular points an stability, including approximate met ods of solution. Liapunov's metho Prerequisite, 640 or 385. Mr. Po

0 Advanced Metal Forming
An advanced treatment of the topics covered in 588.

8 Engineering Project
A research, design, or development project. Written preparation and oral defense of a project proposal giving objectives, literature survey, and proposed plan. Written preparation and oral defense of a final report giving results and conclusions. May be repeated for credit. Prerequisite, graduate standing.
Credit, 1-10.

9 Master's Thesis
Credit, 3-10.

0 Special Problems in Mechanical Engineering
Special investigation or research problems, the scope to be varied to meet specific conditions. Prerequisite, as required by the problem.
Credit, 1-6.

1 Advanced Thermodynamics
Theory of advanced, direct and indirect, energy conversion systems. Thermodynamic cycle optimization methods. Irreversible thermodynamics as applied to steady state energy conversion systems. Direct energy conversion systems include MHD, fuel cells, thermoelectric, thermionic, and other current systems. Prerequisite, 601 or equivalent. Mr. McGowan

5 Advanced Heat Transfer I—Conduction
Development of the general heat conduction equation for nonhomogenous and anisotropic materials with temperature dependent properties. Formulation of boundary conditions in heat conduction problems. Solution of sample resulting boundary value problems using separation of variables, integral transform and finite difference techniques. Prerequisite, 354 or equivalent.
Mr. Zinsmeister

6 Advanced Heat Transfer II—Convection
Development of the general energy equation for convective heat transfer from basic concepts of energy and mass flow. Application to laminar and turbulent, internal and external convective heat transfer problems. Solution methods, including boundary layer theory, similarity concepts, integral approximation methods, and numerical techniques. Introduction to mass transfer. Prerequisite, 607 or equivalent.
Mr. Goss

707 Viscous Fluids
Exact solutions to the Navier-Stokes equations, slow flow, and boundary layer flow. One-dimensional gas dynamics, shock waves, the acoustic equations, and application of the theory of characteristics to compressible flow. Prerequisite 607 or equivalent.
Mr. Kirchhoff, Mr. Jakus

713 Advanced Propulsion Systems
Design, control, and integration of propulsion systems with the vehicle. Air-breathing engines, chemical rocket motors, electrical and nuclear engines. Power and energy limited systems for various mission requirements. Prerequisite, 355 or equivalent. Mr. Ambs

743 Stability of Structures
Correlations of various linear and nonlinear theories with experiments. Creep buckling. Thermal buckling. Buckling due to dynamic loads. Buckling of nonconservative systems. Prerequisite, graduate standing.

744 Thermal Effects in Structures
Uncoupled thermoelastic theory, thermal stresses in beams, rings, plates, and shells. Thermally induced vibrations of beams, plates, and shells. Inelastic thermal stress problems. Stresses in the presence of creep. Ablation phenomena. Prerequisite, graduate standing.

746 Advanced Vibrations
Free and forced vibrations of strings, rods, bars, and thin elastic plates. Free vibrations of circular, cylindrical, and conical shells. Forced harmonic vibrations of thin shells. Propagation of elastic waves. Rayleigh surface waves. Statistical concepts of random vibration analysis. Prerequisite, 640. Mr. Poli

750 Mechanisms and Theory of Machines I
Structure and type synthesis of mechanisms; a solution to the designer's problem of selecting the type of mechanism for a job; applications of the theory of graphs. Digital computer methods for design of linkages; optimization of nonlinear systems. Geometry of plane curves, and instantaneous kinematics of a plane moving body. (Open to qualified undergraduates with permission of instructor.) Mr. Crossley

751 Mechanisms and Theory of Machines II
Dynamics of cam drives; design by computer or simulation by analog computer. Gear train design; problems of efficiency and circulation power in loops. Analog computer simulation of two-and three-dimensional mechanisms in motion. Some three-dimensional linkages and design methods. Mr. Crossley

760 Advanced Mechanical Engineering Design I
Application of control systems theory to design of thermal, fluid, mechanical, electromechanical, and combined systems. Consideration of optimization, stability and methods of simulation.
Credit, 4.

761 Advanced Mechanical Engineering Design II
Optimization in design. Methods of optimization; numerical and variational, linear and non-linear. Advantages, disadvantages, restrictions and use of the various methods.

770 Advanced Combustion
Topics in chemically reacting flow systems, heat, mass, and momentum transfer in chemically reacting ducted flows. Topics include chemical equilibrium, chemical kinetics, transport properties, laminar and turbulent flows, droplets and sprays. Prerequisite, graduate standing and permission of instructor. Mr. Ambs

799 Literature Survey and Seminar
A comprehensive study and organization of the current literature on a selected topic. Presentation of the survey in an open seminar including Department faculty and graduate students. Open only to students who have passed Preliminary Examinations.
Not for credit.

Selected Topics Courses

To best serve the varied interests of its graduate students, the Department has available the following set of selected topics courses. These are one-semester courses and not individualized reading courses. The particular choice of subject matter to be covered in any one of these courses depends upon the specialized needs and interests of the students and is tailored to their requests. The courses are offered only on sufficient demand.

801 Selected Topics in Thermodynamics
Current topics in thermodynamics. An in-depth investigation of a specific topic or specialized thermodynamic system. Emphasis on concurrent reading of the literature. Prerequisite, 701.
Mr. Ambs, Mr. McGowan

811 Selected Topics in Heat Transfer
Topics may be chosen from the following: nonlinear problems in heat conduction with emphasis on temperature-dependent properties; heat conduction in composite and anisotropic materials; heat transfer with change of phase (boiling, condensation, sublimation, melting, and freezing); finite difference and integral approximation techniques in heat transfer; introduction to radiation heat transfer including combined radiation-conduction and radiation-convection. Prerequisites, 705 and/or 706. Mr. Goss, Mr. Zinsmeister

821 Selected Topics in Fluid Mechanics
Any one or two of the following topics: numerical methods in fluid mechanics; advanced measurement techniques; advanced compressible flow; singular perturbation theory; magnetohydrodynamics; free molecule flow-kinetic theory. Prerequisite, 607.
Mr. Kirchhoff

831 Selected Topics in Solid Mechanics
Topics normally chosen from such areas as stability of structures, thermal effects in structures, inelastic behavior of materials, and shell theory. Prerequisite, 630. Mr. Poli

841 Selected Topics in Vibrations
A more in-depth study of some of the topics covered in 641 and 746 usually topics in the area of nonlinear vibrations, stability theory, or random vibrations. Prerequisites, 641 and/or 746.
Mr. Poli

851 Selected Topics on Mechanisms and Machine Design
A few of the following may be studied as a continuation of 751: Classical Burmester theory. The geometry of screw systems, line complexes, and their relation to the mobility of linkages. Use of dual numbers, quaternions, and dual matrices in the computer solution of spatial mechanisms design problems. Application of Chebyshev approximation methods in design. Dynamic analysis and balancing of linkages. Dynamics of mechanical systems with play, backlash, or separation of the parts as in cams, with either analog or computer simulation. Dynamics of mechanisms containing springs of highly elastic elements; nonlinear vibratory systems; stability according to Mathieu-Hill; systems with different regimes of behavior. Prerequisite, 751. Mr. Crossley

871 Special Topics in Combustion and Propulsion
Special topics according to student and instructor interest selected from the current literature. An in-depth student investigation of some aspect of the problem. Prerequisites, 713 and/or 770.
Mr. Ambs

881 Selected Topics in Materials
Advanced study in topics of current interest. Examples include thermodynamics of phase transfer motions, mechanical behavior of ceramic materials, composite materials, and relaxation phenomena in metals. Prerequisite, 609. Mr. Nelson, Mr.Ritter

899 Doctoral Dissertation
Credit, 18.

Microbiology

Graduate Faculty

Curtis B. Thorne, *Professor and Acting Head of the Department of Microbiology* B.S., West Virginia Wesleyan, 1943; M., Wisconsin, 1944; Ph.D., 1948.

Ercole Canale-Parola, *Professor and Graduate Program Director,* B.S., Illinois, 1956; M.S., 1957; Ph.D., 1961.

Charles D. Cox, *Professor,* B.S., Illinois, 1940; M.S., 1941; Ph.D., 1947.

Clifton E. Dowell, Jr., *Associate Professor,* B.A., Texas Christian, 1955; M.A., 1957; Ph.D., Texas, 1962.

Stanley C. Holt, *Professor,* B.S., New York University, 1958; M.S., Michigan State, 1960; Ph.D., California at Davis, 1964.

Thomas G. Lessie, *Associate Professor,* B.S., Queens College, 1958; M.A., Harvard, 1961; Ph.D., 1963.

Leonard C. Norkin, *Assistant Professor,* B.S., Rensselaer Polytechnic Institute, 1964; Ph.D., Columbia, 1969.

Albey M. Reiner, *Associate Professor,* B.S., Princeton, 1962; M.S., Wisconsin, 1964; Ph.D., Harvard, 1968.

Curtis B. Thorne, *Professor,* B.S., West Virginia Wesleyan, 1943; M.S., Wisconsin, 1944; Ph.D., 1948.

Martin S. Wilder, *Associate Professor,* B.S., Brooklyn College, 1960; M.S., Kansas, 1963; Ph.D., 1966.

The Department of Microbiology provides facilities for students intending to complete the requirements for the Master of Science and Doctor of Philosophy degrees. Students accepted for graduate study are expected to have met the usual requirements for the bachelor's degree. Those students considered by the Department to be deficient in cognate sciences may be accepted as graduate student majors in microbiology and have these deficiencies removed during graduate study. Extensive advanced undergraduate courses in microbiology are not as essential as undergraduate background in chemistry, biological sciences, mathematics and physics, in preparation for graduate work in microbiology. Satisfactory knowledge of microbiology and cognate sciences is required for admission to advanced courses in microbiology. The department requires no foreign language reading competency for the doctorate.

ll courses carry 3 credits unless otherwise pecified.

10 General Microbiology
Cytology, pathogenic bacteriology, immunology and virology. Two class hours, one three-hour laboratory period. Prerequisites, one semester of biological science and completion of, or concurrent registration in, a course in organic chemistry.

20 General Microbiology
Ecology, physiology, and genetics of microorganisms. Two class hours, one three-hour laboratory period. Prerequisites, a college course in a biological science and completion of, or concurrent registration in, a course in organic chemistry.

25 Virology
The structure, and the chemical, physical, and biological properties of bacterial viruses. Two class hours, two 3-hour laboratory periods. Prerequisites, Microbiol 550 and permission of instructor. Mr. Dowell
Credit, 4.

30 Pathogenic Bacteriology
Principles of host-parasite interactions; microbial virulence; pathogenic mechanisms; innate and acquired immunity to infectious disease. Prerequisite, Microbiol 550. Mr. Wilder
Credit, 4.

40 Immunology
The nature of antigens and antibodies, their interactions and significance in resistance and hypersensitivity. Two class hours, two 3-hour laboratory periods. Prerequisite, Microbiol 550, or permission of instructor. Mr. Cox
Credit, 4.

60 Microbial Diversity
Physiology, ecology, and morphology of selected groups of microorganisms. Behavior of bacteria in response to environmental stimuli. Two class hours, two three-hour laboratory periods. Prerequisite, Microbiol 551 or permission of instructor. Mr. Canale-Parola
Credit, 4.

40 Microbial Physiology
Microbial chemistry and growth. Composition of bacterial cells, energy metabolism, biosynthesis of macro-molecules and macromolecule precursor materials, and regulatory mechanisms governing these events. Permission of instructor required. Mr. Lessie

699 Master's Thesis
Credit, 10.

710 Advanced Immunology
Advanced theories and laboratory procedures basic to immunology and serology. Permission of instructor required.
Credit, 3-6. Mr. Cox

720 Animal Virology
The molecular biology of animal viruses and viral genetic systems. Special consideration of poliovirus, influenza, and the DNA and RNA tumor viruses. Permission of instructor required.
Mr. Norkin

730 Microbial Fermentations
Microbial products. Theories and methods of industrial production. Laboratory experiments deal with microorganisms and procedures used in industry. Permission of instructor required.

740 Advanced Microbial Physiology
Laboratory. Growth of bacteria; macromolecular composition, bacterial respiration and electron transport systems; fractionation and characterization of bacterial enzymes. Emphasis on regulation of their formation and activity. Permission of instructor required.
Credit, 2-5. Mr. Lessie

750 Microbial Cytology
Lectures, literature reviews, and laboratory; a comprehensive survey of the structure of microbial cells and the functions of their components; use of the electron microscope and ancillary equipment. Permission of instructor required. Mr. Holt
Credit, 3-5.

760 Microbial Metabolism
Metabolic pathways and mechanisms in microorganisms. Lectures, readings and discussions. Permission of instructor required.

770 Microbial Genetics
Inheritance and variation in microorganisms. Mechanisms of recombination, transformation, transduction, and other genetic phenomena in microorganisms. Emphasis on molecular basis. Permission of instructor required.
Credit, 4. Mr. Thorne

780 Host-Parasite Relationships
Intensive treatment of specific relationships between parasitic microorganisms and their hosts, by appropriate literature and laboratory studies. Permission of instructor required. Mr. Wilder
Credit, 2-5.

790 Seminar
Reports and discussion of pertinent literature and research. Normally required of all graduate majors each semester in residence. Permission of instructor required.
Credit, 1

820 Biology of Animal Viruses and Cultured Cells
Current developments in virus-cell relationships in infections with cytocidal and tumorigenic viruses. Lectures and discussions. Mr. Norkin
Credit, 2.

890 Current Topics
Intensive consideration of a specific microbiological topic of current interest utilizing staff and student participation and visiting scientists. Lectures and discussions only. Credit depends upon particular topic. Permission of instructor required.
Credit, 1-2.

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Charles Bestor, *Head of the Department of Music,* B.A., Swarthmore, 1948; B.S., Juilliard School of Music, 1951; M.M., Illinois, 1952; D.M.A., Colorado, 1974.

Albert G. Huetteman, *Associate Department Head and Graduate Program Director,* B.M., New England Conservatory, 1956; M.F.A., Ohio, 1957; Ph.D., Iowa, 1968.

E. Wayne Abercrombie, *Assistant Professor,* Westminster Choir College, B.M., 1960; M.M., 1961; D.Mus., Indiana, 1974.

I ·ic Alviani, *Professor,* Boston, B.M., 1 .37; Ed.M., 1941; Union Theological Seminary, S.M.D., 1962.

Horace C. Boyer, *Assistant Professor,* B.A., Bethune-Cookman College, 1957; M.A., Eastman School of Music, 1964; Ph.D., 1973.

Walter Chesnut, *Associate Professor,* Michigan, B.M., 1958; M.M., 1959.

Joseph Contino, *Professor,* Oberlin, B.M., 1949; Columbia, M.A., 1950.

Nigel Coxe, *Associate Professor,* L.R.A.M., Royal Academy of Music, London, 1950; F.R.A.M., 1964.

John D'Armand, *Assistant Professor,* Tennessee, B.S., 1958; Baldwin-Wallace, B.M., 1963; Illinois, M.M., 1965.

Richard Du Bois, *Professor,* B.Mus., Heidelberg College, 1948; M.M., American Conservatory of Music, 1949; Ph.D., Iowa, 1964.

Jon Humphrey, *Associate Professor,* B.M., Baldwin-Wallace, 1958; M.M., Illinois, 1967.

John Jenkins, *Associate Professor,* Michigan, B.M., 1957; M.M., 1960; M.A., 1971; Ph.D., 1974.

Fernande Kaeser, *Associate Professor,* 1st Prix de Virtuosité, Geneva Conservatory.

Laura Klock, *Assistant Professor,* Michigan, B.M., 1973; M.M., 1974.

Charles Lehrer, *Assistant Professor,* B.A., Trenton State, 1964; M.M., Boston, 1965; D.M.A., Michigan, 1968.

Ernest May, *Assistant Professor,* B.A., Harvard, 1964; M.F.A., Princeton, 1968; Ph.D., 1975.

Estela Olevsky, *Associate Professor,* Diploma Superior, National Conservatory, Buenos Aires.

Julian Olevsky, *Associate Professor.*

Dorothy Ornest, *Associate Professor,* B.M., Eastman School of Music, 1942; M.M., University of Michigan, 1944.

Linda Smith, *Assistant Professor,* B.M., Iowa, 1970; M.M., Manhattan School of Music, 1971.

Terrell Stackpole, *Assistant Professor,* Boston, B.M., 1961; M.M., 1967; Michigan, Ph.D., 1972.

Ronald Steele, *Associate Professor,* B.S., Lebanon Valley, 1956; M.M., Michigan, 1963.

Robert Stern, *Professor,* B.A., Rochester, 1955; M.A., Eastman School of Music, 1956; Ph.D., 1962.

Robert V. Sutton, *Professor,* B.M., Alabama, 1948; M.M., Eastman School of Music, 1949; Ph.D., 1955.

Joanne Tanner, *Assistant Professor,* B.M., Eastman School of Music, 1959; M.M., Catholic University, 1960.

Peter H. Tanner, *Associate Professor,* B.M., Eastman School of Music, 1958; M.M., 1959; Ph.D., Catholic University 1967.

Leopold Teraspulsky, *Professor,* B.M., Manhattan, 1947.

Frederick C. Tillis, *Professor,* B.A., Wiley College, 1949; M.A., Iowa, 1952; Ph.D., 1963.

Miriam Whaples, *Associate Professor,* B.A., Indiana, 1950; M.M., 1954; Ph.D., 1958.

The Department of Music & Dance offers a Master of Music degree in one of four areas of concentration: Music Education; Music History/Musicology; Theory-Composition; and Performance. A minimum of 33 hours, a comprehensive oral examination and a piano proficiency test are required in all four areas. In addition, two languages are required in the Music History/Musicology area and diction skills in the Voice Performance area.

A basic core of courses in music theory and history and ensemble participation is required of all degree candidates. Further hours are required according to the area of concentration and electives are usually possible.

For admission in any area of concentration, an audition in person (or by tape) is required in the applicant's major performance subject (instrumental or voice). In Theory-Composition, scores of recent works are additionally required. Placement Tests in music history and theory are given at the time of the audition (or by mail), but before acceptance into any area of concentration. Applicants should write immediately to the Department of Music & Dance for the M.M. leaflets and name their performance subject and any alternative concentration.

All courses carry 3 credits unless otherwise specified.

502 Music History—Haydn, Mozart, and Beethoven
Reading, listening, score study. Music of Haydn, Mozart and Beethoven, and possibly that of their contemporaries.

503 Music History—From Schubert to Debussy
Historical study of 19th-century music in small and large forms, and various media including keyboard instruments, Lieder, chamber music, symphony, opera. Reading, listening, score study.

504 Music History—Music of the 20th Century
Music, European and American, written since 1900. Includes Stravinsky, Bartok, Hindemith, Copland, jazz, and electronic music.

505 Music History—History of Opera
History of opera from the late 16th through the present century.

510 Counterpoint
Writing and analysis of invertible counterpoint, various canonic devices, and fugue.

511 Orchestration
Problems in scoring for various ensembles including full orchestra.

512 Contemporary Techniques
Melody, rhythm, harmony, and form in 20th-century music. Analysis, listening, written assignments.
Credits, 2.

513,514 Jazz Theory and Improvisation I and II
Theory as applied to performing, analyzing and composing in the jazz medium.

515 Jazz Arranging and Composition
Writing arrangements and composing for jazz ensembles and the school stage band. Analysis, listening and instrumental scoring.

521 Instrumental Music in the Public School
The teaching of instrumental music: organization and pedagogical problems. Evaluation of current methods, materials and research.

522 Music Education in the Elementary School
Exploration and evaluation of recent trends in elementary school music. Curriculum planning, materials, techniques.

523 Choral Music in the Public School
Organization of the choral program in the junior and senior high school. Materials and methods of teaching small and large vocal ensembles.

533 Instrumental Conducting
Score analysis, rehearsal techniques, and advanced conducting problems of orchestral ensembles.

534 Choral Conducting
Score analysis, rehearsal techniques, and advanced conducting problems of choral ensembles.

535 Advanced Choral Literature
Historical survey of choral literature and the study of performance practices.

536 Advanced Orchestral Literature
Historical survey of orchestral literature and the study of performance practices.

540-557 Performance— Individual Instruction
Literature and instrumental technique or voice production. Audition required.
Credit, 1-4.

540 Applied Piano

541 Applied Organ

542 Applied Voice

543 Applied Violin

544 Applied Viola

545 Applied Cello

546 Applied String Bass

547 Applied Flute

548 Applied Oboe

549 Applied Clarinet

550 Applied Bassoon

551 Applied Saxophone

552 Applied Trumpet

553 Applied French Horn

554 Applied Trombone

555 Applied Baritone Horn

556 Applied Tuba

557 Applied Percussion

Performing Organizations (Audition Required)

560 University Chorale
Preparation and performance of choral literature ranging from the Renaissance to contemporary music. Performance on campus and on concert tours.
Credit, 1.

561 University Chorus
Preparation and concert performance of oratorios and other large choral works.
Credit, 1.

562 Women's Choir
A select choir specializing in literature for women's voices.
Credit, 1

563 Chamber Singers
Vocal ensemble specializing in performance of chamber music from Renaissance to contemporary.
Credit, 1.

564 Madrigal Singers
Vocal ensemble specializing in music of the Renaissance.
Credit, 1

565 University Orchestra
Preparation and performance of orchestral literature of various styles and periods.
Credit, 1.

566 Marching Band
Preparation and performance of pregame and half-time shows during the football season.
Credit, 1.

567 Symphony Band
Preparation and performance of band literature of various styles and periods.
Credit, 1.

568 Wind Ensemble
Preparation and performance of wind ensemble literature of various styles and periods.
Credit, 1.

569 Concert Band
Preparation and limited performance of selected band literature.
Credit, 1.

570 Jazz Workshop
Preparation and performance of literature for jazz ensembles and the school stage band.

571 Ensemble
Preparation and performance of appropriate literature for small instrumental and vocal ensembles.
Credit, 1.

592 Composition
Free composition in various forms and media. Individual lessons. Weekly seminar.

600,601 Seminar in Musicology
Materials and methods of systematic and historical musicology. Specialized topics investigated each semester. The application to different problems of various subjects such as history, acoustics, aesthetics, analysis. May be repeated for credit with varying content as advised.

602 Music History—Medieval
Repertoire study and stylistic analysis; study of notation

603 Music History—Renaissance
Such composers as Dunstable, Dufay, Binchois, Okeghem, Obrecht, Isaac, Josquin, Milan, Tallis, Palestrina, Lassus, Victoria, Byrd, the Gabrielis, and their contemporaries. Media, forms, society. Reading, listening, score-study, analysis.

604 Music History—Baroque
Such composers as the Camerata, Monteverdi, Schutz, Lully, Purcell, Corelli, Couperin, Rameau, the Scarlattis, and their contemporaries. Reading, listening, score study, analysis.

605 Music History—The Age of Bach and Handel
J.S. Bach, the Bach family, Handel, their predecessors and contemporaries. Media, forms, society. Reading, listening, score study, analysis.

610-612 Analysis of Music Literature
Representative compositions from each period. Analysis by score and sound of the various musical forms and media.

610 Analysis of Music Literature, 1600-1750

611 Analysis of Music Literature, 1750-1825.

612 Analysis of Music Literature, 1825-1900.

Nursing

613 Analysis of Music Literature, 1890-Present

615 History and Pedagogy of Theory
Principal authors of treatises dealing with composition, counterpoint, and harmony. Emphasis on the relationship between the works discussed and contemporary pedagogical techniques of presenting theory and allied subjects.

620 Supervision and Administration of Music
The function of the music supervisor, and administrative problems in public school.

621 Research in Music Education
Individual research projects in selected areas of Music Education.

697 Special Problems
Credit, 1-6.

699 Master's Thesis
Credit, 3-10.

Graduate Faculty

Gila Kornfeld-Jacobs, *Lecturer,* B.A., Bar-Ilan University, 1962; M.A., Teachers College, Columbia University, 1964; Ph.D., New York at Buffalo, 1971.

Alvin E. Winder, *Professor and Acting Graduate Program Director,* B.A., Brooklyn College, 1947; M.S., Illinois, 1948; Ph.D., Chicago, 1952.

Priscilla R. Ulin, *Assistant Professor and Chairman of Graduate Program in Community Health Nursing,* B.A., Mount Holyoke, 1954; M.N., Yale, 1957; M.A., Massachusetts, 1971; Ph.D., 1976.

Selcuk T. Sahin, *Assistant Professor,* B.S., EGE University, 1964; M.S., Boston, 1975; Ed.D., Massachusetts, 1977.

Graduate study in nursing is consistent with the main purposes of graduate education at the University and the philosophy of the Division of Nursing. The program provides for both academic excellence through diversity in educational offerings and educational services responsive to the nursing needs of the Commonwealth of Massachusetts.

Graduate courses build on the base of knowledge and skill acquired through undergraduate study in the nursing major. In the Division of Nursing, graduate study is designed so that students may extend their interest, knowledge and competence in an area of clinical specialization.

Graduate nursing education is also consistent with the service objectives of the University in preparing nurses for leadership in the complex of health care services. The graduates prepared in an area of clinical specialization at the Master of Science level are capable of influencing current and future delivery of services in Massachusetts.

The Faculty believe that the *core* of nursing is goal-directed clinical practice. In graduate education, this is achieved through clinical specialization and research-directed nursing practice. The focus is on developing, testing, synthesizing and expanding theory which explains and guides practice.

The objective of graduate nursing education at the University is to prepare nurses who are able to contribute to the formulation of theories and their application to the nursing of individuals and families living in urban and rural communities.

The Graduate Faculty believe that a research attitude (scientific approach, critical inquiry, logical thought process and utili tion of research findings) should be dev oped in undergraduate study. The gradu program, therefore, is attentive to enlargi students' knowledge of research and its re vance to their elected client system and ward enhancement of students' pre-vision utilizing the research approach to solve nu ing problems.

The Faculty, through its own pursuits a through provision of such a graduate pr gram, work toward: 1) the development scholarship; 2) the elaboration of theories explain nursing care phenomena; 3) the d velopment of rationally tested nursing pra tices, and 4) the advancement of nursi through exploration, understanding and u lization of research findings.

Clinical specialization in Psychiatric-Ment Health Nursing, Community Health Nur ing, and Biopsychological Nursing is provi ed.

The Division of Nursing Graduate Progra is committed to the Affirmative Actic guidelines of the University.

In addition to the Admission Requiremen of the Graduate School, candidates for a mission to the Master's program in Nursi are required to present evidence of:

1. A baccalaureate degree from an accred ted college or university with a major i nursing, including knowledge of Publi (Community) Health.
1. A Cumulative G.P.A. of 3.00 on a 4.0 scale in all upper division nursing course
3. The following minimum number of ur dergraduate credits (total credits, 36) c equivalency must be met prior to admi sion to graduate study: Physical/Biolog ical Sciences, 12 cr.; Social/Behaviora Sciences, 12 cr.; Rhetoric/English/ Speech Communication, 6 cr.; Statistics 3 cr.; and Research, 3 cr.
4. Current licensure as a registered nurse.
5. G.R.E. Score—Minimum combined tota of 1,000, verbal and quantitative.

REQUIREMENTS FOR THE MASTER'S DEGREE

1. Total of 48 credits, of which a minimun of 36 are in combined clinical nursing an related behavioral and natural science and research. The remaining 12 credit may be in one of the functional areas o administration or teaching of nursing o may be devoted to the study of a specializ ed area in the major clinical field or a se cond clinical field.

2. Field practice.
3. Master's Thesis (Nursing 699) in selected area of nursing.

Core Requirements

Required of all Graduate Students in Nursing are Advanced Biometric Statistics, Inquiry and Research Methodology in Nursing, and a Master's Thesis.

NOTE: No new students will be admitted to this program until further notice.

All courses carry 3 credits unless otherwise specified.

630 Research Techniques in Nursing
Assists nursing students in developing their own research projects. Organized around the process of inquiry which emphasizes the skills of critical thinking. Includes the procedure for developing research design and the application of experimental and descriptive methodological research techniques most appropriate to research in nursing. Prerequisite, Advanced Biometric Statistics.

Courses Open to Graduate Students of Nursing Only

Biopsychological Nursing

610 Medical-Surgical Nursing I
Development of a working frame of reference relative to interactive behavior between nurses and clients. Various theories of behavior in regard to their clinical relevance. A goal-directed framework for nursing responses.

615 Medical-Surgical Nursing II
The essential biological nature of humans in relation to homeostasis, reactions to stress and maladaptive states seen in illness. Emphasis on the way clinical data may be analyzed within a general systems framework which may be used as a clinical model for practice.

620 Medical Surgical III
A seminar associated with a clinical practicum both of which provide a model of clinical study and research. Includes modes of maintaining a cognitive base, practice expertise, investigative research and of initiating social change relevant to health care systems. Prerequisites, Nursing 610 and 615.
Credit, 6.

625 Medical-Surgical Nursing IV
Guided study in selected areas of biopsychological nursing. Activities include seminar, clinical practicum, investigative efforts and writing. Students design individual programs in collaboration with faculty preceptors to meet goals set in each of these areas. Prerequisite, Nursing 620.
Credit, 6-12.

635 Community Health Nursing I
The interaction of two social sub-systems—health and the family. The effects of domestic organization and relationships on health, as well as the effects of health problems on domestic life. Patterns of family life seen in comparative, sometimes cross-cultural perspective; emphasis on sociological explanations of domestic and health behavior rather than on individualistic psychological explanations.

640 Community Health Nursing II
Seminar and practicum on those aspects of a community directly influencing the health and nursing needs of people. Identification of the interactions and interrelationships between family and community that affect health care and health behavior. Evolving patterns in the delivery of health services.

645 Community Health Nursing III
Seminar on the role of the community health nurse in the light of broader health issues. Participants select or create a definitive field work experience to develop a particular nursing role. This role must be justified in relation to current issues and problems in community health, i.e., fragmentation of health care, patient advocacy, hospital versus home care, racism and sexism in health systems.
Credit, 6.

650 Community Health Nursing IV
Additional clinical experience in independent study in Community Health Nursing. Objectives for such an experience must be clearly formulated between the student and the faculty sponsor. Students may negotiate number of credits according to time and effort required.
Credit, 6-12.

Psychiatric-Mental Health Nursing

655 Concepts and Theories of Advanced Mental Health Nursing
Theories about mental health, psychopathology and psychotherapeutics; an overview of the wide range of concepts and principles applicable to mental health nursing practice and research. In-depth study of a theoretical framework of the student's choice.

660 Advanced Mental Health Nursing Practice with Individuals
Seminar and practicum in mental health nursing focusing on nursing care of individuals. Students establish one-to-one relationships with individuals suffering temporary emotional crises or long-term mental illness. Students expected to sharpen their assessment skills and study the effects of life crises on individuals. Students apply theories of relationship therapy and current research in mental illness to their study of nursing practice with individuals.
Credit, 4.

665 Advanced Mental Health Nursing Practice with Groups
Seminar and clinical practicum in mental health nursing focusing on groups of individuals. Students learn group therapy and leadership skilss as they assume leadership and co-leadership roles with groups of clients experiencing emotional crisis or illness. Students integrate theory and research about group work with their study of nursing practice with groups of clients. Prerequisites, Nursing 655 and 660.
Credit, 4.

670 Advanced Mental Health Nursing Practice with Families
Seminar and clinical practicum in mental health nursing focusing on families. The family as a system; single-family or multiple-family groups. Students apply theory and research about family dynamics and mental health to their study of nursing practice with families. Prerequisites, Nursing 655, 660 and 665.

675 Clinical Specialization in Community Mental Health Nursing
Seminar and clinical practicum; assists students to synthesize their clinical nurse specialist roles. Students select an area of special interest for their experience in functioning as a nursing specialist, and explore the differences between the supervisory, therapeutic, educative and consultive facets of their specialist role. Students expected to apply theories and research about community mental health and consultation to their experience as nursing specialists. Prerequisites, Nursing 655, 660, 665 and 670.
Credit, 6.

Philosophy

655 Concepts and Theories of Advanced Mental Health Nursing
Theories about mental health, psychopathology and psychotherapeutics; an overview of the wide range of concepts and principles applicable to mental health nursing practice and research. In-depth study of a theoretical framework of the student's choice.

660 Advanced Mental Health Nursing Practice with Individuals
Seminar and practicum in mental health nursing focusing on nursing care of individuals. Students establish one-to-one relationships with individuals suffering temporary emotional crises or long-term mental illness. Students expected to sharpen their assessment skills and study the effects of life crises on individuals. Students apply theories of relationship therapy and current research in mental illness to their study of nursing practice with individuals.

Graduate Faculty

Robert C. Sleigh, Jr., *Professor, and Head of the Department of Philosophy,* A.B., Dartmouth, 1954; M.A., Brown, 1957; Ph.D., 1963.

Fred Feldman, *Associate Professor and Graduate Program Director,* B.A., Bard, 1963; M.A., Harpur, 1965; Ph.D., Brown, 1968.

Robert Ackermann, *Professor,* A.B., Capital, 1954; M.A., Ohio, 1957; Ph.D., Michigan State, 1960.

Bruce Aune, *Professor,* A.B., Minnesota, 1955; M.A., 1957; Ph.D., 1960.

G. Lee Bowie, *Associate Professor* (Mount Holyoke College).

John A. Brentlinger, *Associate Professor,* A.B., Chicago, 1958; M.A., Yale, 1960; Ph.D., 1962.

Vere C. Chappell, *Professor,* B.A., Yale, 1951; M.A., 1953; Ph.D., 1958.

Roderick M. Chisholm, *Adjunct Professor,* (Andrew W. Mellon Professor of the Humanities, and Professor of Philosophy, Brown University), A.B., Brown, 1938; A.M., Harvard, 1940; Ph.D., 1942.

Leonard H. Ehrlich, *Professor,* B.S., Roosevelt, 1947; M.A., Yale, 1958; Ph.D., 1960.

Ann Ferguson, *Associate Professor,* B.A., Swarthmore, 1959; M.A., Brown, 1961; Ph.D., 1965.

Edmund L. Gettier, III, *Professor,* B.A., Johns Hopkins, 1949; Ph.D., Cornell, 1961.

Gary Hardegree, *Assistant Professor,* B.S., Georgia Institute of Technology, 1972; Ph.D., Indiana, 1976.

Herbert Heidelberger, *Professor,* B.A., New York, 1955; M.A., Princeton, 1960; Ph.D., 1962.

Michael Jubien, *Associate Professor,* A.B., Dartmouth, 1965; Ph.D., Rockefeller, 1972.

Thomas R. Kearns, *Associate Professor,* (Amherst College).

William E. Kennick, *Professor* (Amherst College).

Murray J. Kiteley, *Professor* (Smith College).

Gareth Matthews, *Professor,* A.B., Franklin, 1951; A.M., Harvard, 1952; Ph.D., 1961.

Felix Oppenheim, *Professor of Political Science and of Philosophy.*

Terence Parsons, *Professor of Philosophy and of Linguistics,* B.A., Rochester, 1961; Ph.D., Stanford, 1966.

Barbara Hall Partee, *Professor of Linguistics and of Philosophy,* B.A., Swarthmore, 1961; Ph.D., Massachusetts Institute of Technology, 1965.

Richard S. Robin, *Professor* (Mount Holyoke College).

John G. Robison, *Associate Professor,* B.A., Georgia, 1957; M.A., Emory, 1958; Ph.D., Pennsylvania, 1962.

David S. Schwarz, *Assistant Professor* (Mount Holyoke College).

Malcolm B.E. Smith, *Associate Professor* (Smith College).

George V. Tovey, *Professor* (Mount Holyoke College).

A. Thomas Tymoczko, *Assistant Professor* (Smith College).

Robert Paul Wolff, *Professor,* A.B., Harvard, 1953; A.M., 1954; Ph.D., 1957.

THE COOPERATIVE PH.D. PROGRAM

The Ph.D. degree in philosophy is offered by the University in cooperation with Amherst, Hampshire, Mount Holyoke, and Smith Colleges. Though the degree is awarded by the University's Board of Trustees, a student may be in residence at any one of the five institutions; the institution of residence is noted on the student's permanent record.

The Cooperative Program in Philosophy is administered by the University's Graduate Faculty of Philosophy. This Faculty consists of all those teachers of philosophy at the five institutions who have been admitted to the Graduate Faculty of the University.

Admission to the Program is determined by the Graduate School upon recommendation by the Admissions Committee of the faculty.

Upon entering the Program, each student is assigned a faculty member as adviser, who provides consultation concerning schedule of courses, progress, and any special problems encountered.

Students generally take four courses (12 credit hours) each semester during their first two years in the Program. The total course requirement for the Ph.D. degree is 16

urses (48 hours) exclusive of Philosophy 9 and 899. Of these 16, eight (24 hours) ust be University philosophy courses at 0 level, exclusive of 796. The remaining ght may include: up to six hours of Philos- hy 796; University philosophy courses at e 500- or 600-level; comparable courses at e four cooperating Colleges, or, with the proval of the Faculty's Graduate Program rector, at other institutions; or, again with e approval of the Graduate Program Dir- tor, graduate courses in other fields at the niversity or the cooperating Colleges.

ne of the 16 courses required for the Ph.D. gree must be distributed among three lds of philosophy, as follows: four in his- ry of philosophy (at least one in ancient d two in modern philosophy), three in me- physics and epistemology (at least one in ch of metaphysics and epistemology), and o in ethics and value theory (at least one in hics).

addition to the total course requirement, e University requires 18 hours of Philoso- y 899.

ere is no language requirement for the .D. in philosophy.

the end of the second year of graduate dy (four semesters of being registered for e or more courses), each student in the ogram must have satisfied the Ph.D. logic quirement by earning a grade of B or bet- in two of the University Department's ur graduate level logic courses, or the equi- lent.

ior to the end of the third year in the Pro- am, the student must demonstrate compe- ncy in the history of philosophy and any o of the following fields: metaphysics and istemology; value theory; philosophy of nguage, logic, and mathematics; philo- phy of science; philosophy of religion or istential philosophy. Competency in a field ay be demonstrated either by passing a eliminary exam in that field, or by writing substantial paper in that field that gives so- l evidence of ability to do the kind of orig- al research required to produce a satisfac- ry dissertation. Each student in the Pro- am must write at least one such paper.

hen the student has demonstrated compe- ncy in three fields as described above, and s satisfied the logic requirement, the total urse requirement, and the course distri- tion requirement, then he or she will be rtified as having passed the preliminary re- uirement for the Ph.D. in philosophy. A dent who has passed the preliminary re- uirement may receive the M.A. degree.

Having completed the preliminary requirement, the student acquires a Dissertation Committee which oversees the rest of the work for the Ph.D. degree. This committee is formally appointed by the Dean of the Graduate School on the recommendation of the Faculty's Graduate Program Director. The Chairperson of the Dissertation Committee is the Director of the student's dissertation.

When the dissertation is finished, it is submitted to the Dissertation Committee for judgment. If, and only if, the committee approves it unanimously, the Final Oral Examination is scheduled.

The Final Oral Examination is conducted by the Dissertation Committee. The examination is open to the University Community at large, students and faculty, and any member of the Philosophy Faculty may participate in the questioning of the candidate. Only the members of the Dissertation Committee, however, vote on the candidate's performance; their vote must be unanimous in order for the examination to be passed.

Having passed the Final Oral, the student then has the dissertation finally typed, according to the specifications given in the *Guidelines for Doctoral Degree Candidates.* The typed original and one copy must be submitted to the Graduate School, and a second copy, bound, to the Faculty of Philosophy, by the Graduate School deadlines for the May, September, or February graduations, respectively.

A more complete statement of the regulations governing the Graduate Programs is available from the Graduate Program Director of the Philosophy Department.

THE M.A. PROGRAM

The M.A. Program in philosophy is administered by the University's Department of Philosophy.

Admission to the Program is determined by the Graduate School upon recommendation of the Department's Admissions Committee.

Upon entering the Program, each student is assigned a Department member as adviser, who then provides consultation concerning schedule of courses, progress toward fulfillment of degree requirements, and any special problems that may arise.

The total course requirement for the M.A. degree is 10 courses (30 hours). Of these 10, four (12 hours) must be University philosophy courses at the 700 level, exclusive of 796. The remaining six may include: up to six hours of Philosophy 796; six hours of Philosophy 699; University philosophy courses at the graduate level, comparable courses at Amherst, Hampshire, Mount Holyoke, and Smith Colleges; or, with the approval of the Department's Graduate Program Director, up to six hours of graduate courses in other fields at the University or the four colleges.

Each student must pass at least three regular graduate courses in the history of philosophy (at least one of which is in ancient philosophy and at least one of which is in modern philosophy); at least two regular graduate courses in metaphysics and epistemology; and at least one regular graduate course in ethics or value theory. A regular graduate course is one numbered above 500, but not 796 or 699.

Each student must pass one of the following options: *Option A:* Under this option, the student earns two passing grades in any combination of Ph.D. starred papers and preliminary exams. *Option B:* Under this option, the student writes a Master's Thesis, under the supervision of a Thesis Committee. This committee is formally appointed by the Dean of the Graduate School on the recommendation of the Department's Graduate Program Director, after the student has completed eight of the 10 courses required for the M.A. degree. Six hours of Philosophy 699 may then be used for the remaining two courses. When the thesis is finished and has been approved by the committee unanimously, the student takes a Final Oral Examination, conducted by the committee, whose vote on the student's performance must be unanimous in order for a passing grade to be given. Having passed this examination, the student then has the thesis finally typed, bound, and submitted according to the specifications given in the *Guidelines for Master's Degree Candidates.*

Each student must pass an Oral Exam, conducted by the Department, based mainly but not necessarily entirely upon, his or her exams/starred papers/thesis.

All requirements for the M.A. degree must be completed within three years of the student's first enrollment in the Program.

500 Contemporary Problems

512 Philosophy and Logic

513 Mathematical Logic I

514 Mathematical Logic II

550 Epistemology

551 Metaphysics
560 Political Philosophy
561 Aesthetics
562 History of Ethics
563 Ethical Theory
582 Philosophy of Science
583 Philosophy of Religion
584 Philosophy of Language
585 Philosophical Theology
586 Philosophy of Mathematics
591-595 Seminars
596 Independent Study
597 Special Topics
691-695 Seminars
696 Independent Study
697 Special Topics
698 Practicum
699 Master's Thesis
700 Proseminar
701 Selected Philosopher I
702 Selected Philosopher II
703 Problem in History of Philosophy
704 Problem in History of Philosophy
710 Formal Logic
720 Plato
730 Kant I
731 Kant II
750 Metaphysics
751 Theory of Knowledge
760 Ethics
780 Existential Philosophy
781 Philosophy of Education
782 Philosophy of Religion
783 Philosophy of Language
784 Philosophy of Science
785 Philosophy of Mind
790E Philosophy of Social Science
790F Philosophy of Education
790G Modal Logic
790H Philosophy of History
790J Classics of Critical Social Theory
791-795 Seminars
796 Independent Study
797 Special Topics
891-895 Seminars
896 Independent Studies
897 Special Topics
899 Ph.D. Dissertation

Physics

Graduate Faculty

Frederick W. Byron, Jr., *Professor of Physics and Head of the Department of Physics and Astronomy,* B.A., Harvard, 1959; Ph.D., Columbia, 1963.

Arthur R. Swift, *Professor and Graduat Program Director in Physics and Astronomy,* B.A., Swarthmore, 1960, Ph.D., Pennsylvania, 1964.

Thomas T. Arny, *Associate Professor of Astronomy.*

John J. Brehm, *Professor,* B.S., Maryland, 1956; M.S., Cornell, 1959; Ph.D., Maryland, 1963.

Edward S. Chang, *Associate Professor,* B.A., California at Riverside, 1961; M.A 1964; Ph.D., 1967.

LeRoy F. Cook, *Professor,* B.A., Califor nia at Berkeley, 1953; M.A., 1957; Ph.D 1959.

William A. Dent, *Associate Professor of Astronomy.*

Stanley Engelsberg, *Professor,* B.S., Massachusetts Institute of Technology, 1955; M.A., Harvard, 1957; Ph.D., 1961

Norman C. Ford, *Professor,* B.S., Massachusetts Institute of Technology, 1953; M.A., Syracuse, 1960; Ph.D., California at Berkeley, 1964.

William J. Gerace, *Associate Professor,* B.S., Massachusetts Institute of Technology, 1963; Ph.D., Princeton, 196

H. Mark Goldenberg, *Associate Professo* B.S., California Institute of Technology, 1956; M.S., Harvard, 1957; Ph.D., 1960.

Eugene Golowich, *Professor,* B.S., Rensselaer Polytechnic Institute, 1961; Ph.D., Cornell, 1965.

Robert A. Guyer, *Professor,* B.S., New Mexico State, 1959; Ph.D., Cornell, 1966.

Robert B. Hallock, *Associate Professor,* B.S., Massachusetts, 1965; M.S., Stanford 1967; Ph.D., 1969.

Eward R. Harrison, *Professor of Astronomy.*

Stanley S. Hertzbach, *Associate Professor* B.E.S., Johns Hopkins, 1959; Ph.D., 1965

Barry R. Holstein, *Associate Professor,* B.S., Carnegie Institute of Technology, 1965; M.S., 1967; Ph.D., Carnegie-Mellor 1969.

G. Richard Huguenin, *Professor of Astronomy.*

William M. Irvine, *Professor of Astronomy and Head of the Astronomy Program.*

Douglas A. Jensen, *Associate Professor,* B.A., Kalamazoo, 1963; M.S., Chicago, 1965; Ph.D., 1970.

Phillips R. Jones, *Professor,* B.S., Massachusetts, 1951; M.S., Connecticut, 1956; Ph.D., 1959.

Richard R. Kofler, *Associate Professor,* B.S., Marquette, 1958; M.S., Wisconsin, 1960; Ph.D., 1964.

Michael N. Kreisler, *Professor,* B.A., Princeton, 1962; M.S., Stanford, 1963; Ph.D., 1966.

Robert V. Krotkov, *Professor,* B.A., Queens University, Canada, 1951; M.S., 1952; Ph.D., Princeton, 1958.

Kenneth H. Langley, *Associate Professor,* B.S., Massachusetts Institute of Technology, 1958; Ph.D., California at Berkeley, 1966.

Richard A. Lindgren, *Associate Professor,* B.A., Rhode Island, 1962; M.A., Wesleyan, 1964; Ph.D., Yale, 1969.

William J. Mullin, *Associate Professor,* B.S., St. Louis, 1956; Ph.D, Washington (St. Louis), 1965.

Claude M. Penchina, *Professor,* B.E., Cooper Union, 1959; M.S., Syracuse, 1961; Ph.D., 1964.

Gerald A. Peterson, *Professor,* B.S., Purdue, 1953; M.A., 1955; Ph.D., Stanford, 1962.

Francis Pichanick, *Associate Professor,* B.S., University of Capetown, South Africa, 1957; M.S., 1958; Ph.D., Oxford University, England, 1961.

Arthur R. Quinton, *Professor,* B.S., Queen Mary College, London University, England, 1944; M.S., University of Western Ontario, Canada, 1951; Ph.D., Yale, 1954.

Monroe S. Rabin, *Associate Professor,* B.A., Columbia, 1961; M.S., Rutgers, 1964; Ph.D., 1967.

Philip Rosen, *Professor,* B.S., City College of New York, 1944; M.S., Yale, 1946; Ph.D., 1949.

Hajime Sakai, *Professor,* B.S., University of Hokkaido, Japan, 1953; M.S., University of Hawaii, 1956; Ph.D., Johns Hopkins, 1962.

Kandula S.R. Sastry, *Associate Professor,* B.S., Andhra University, India, 1955; M.S., 1956; Ph.D., Indiana, 1962.

Nicholas Scoville, *Assistant Professor of Astronomy.*

Janice Button Shafer, *Professor,* B.E.P., Cornell, 1954; Ph.D., California at Berkeley, 1959.

Edward A. Soltysik, *Professor,* B.S., Lafayette, 1950; M.S., Indiana, 1952; Ph.D., 1956.

Morton M. Sternheim, *Professor,* B.S., City College of New York, 1954; M.S., New York, 1956; Ph.D., Columbia, 1961.

Eugene Tademaru, *Associate Professor of Astronomy.*

Joseph H. Taylor, Jr., *Professor of Astronomy*

David J. Van Blerkom, *Associate Professor of Astronomy*

James F. Walker, *Associate Professor,* B.S., Minnesota, 1959; M.S., 1961; Ph.D., 1964.

Graduate degrees are offered in both physics and astronomy by the Department. Candidates planning to major in astronomy are referred to the description of the astronomy program (see Astronomy).

The general requirements for the Ph.D. in Physics are those of the Graduate School. These are implemented along the following lines. During the first two years, a student takes a normal load of basic courses. The basic courses of the program are 601, 602, 605, 606, 607, 614, 615, 710, 714, 715, 716, 718, 719. The student must complete a research requirement of three research-oriented courses. Two of these must be outside of the student's area of specialization. After passing the qualifying examination, normally in the second year, the student is expected to devote his or her major effort to research. Courses taken during this period usually are in the student's research field. The department requires no foreign-language reading competency for the doctorate.

All degree candidates are required to perform teaching in the department. A waiver of this requirement must be requested from the graduate studies committee.

The requirements for the master's degree consist of 30 graduate credits, at least 15 of which shall be in the 600-900 courses, and at least 21 of which shall be in physics. The 15 credits of 600-900 courses may include 6 credits of Master's thesis, Physics 699. The M.S. candidate must take at least one course in the Quantum Mechanics sequence which starts with Physics 564. At least five courses in physics must be passed with a grade of A or B, and a general examination must be passed before the degree is awarded.

Candidates planning to major in physics should have completed at least (preferably, more than) 15 semester credit hours in undergraduate physics beyond an introductory course (such as Physics 161, 162, 163) and also 6 credits of mathematics beyond college-level calculus.

MASTER OF ARTS IN TEACHING (MAT) PROGRAM IN PHYSICS

The Master of Arts in Teaching Degree (MAT) is offered, in cooperation with the School of Education to candidates interested in physics teaching at the secondary school level.

The program requires 39 credits distributed as follows: Physics or physics-related courses, 21 credits; Education courses, 9 credits; Internship or equivalent practicum, 9 credits. The education credits must include at least two of these four areas: educational psychology, philosophy of education, methods and materials, and curriculum development.

For the community-college level option 45 credits are required, distributed as follows: Physics or physics related courses, 24 credits; Education courses (including curriculum) teaching clinic, directed observation, advising and counselling, and philosophy of education, 12 credits; Internship or equivalent practicum, 9 credits.

Prerequisites for Admission
A bachelor's degree with a major in one of the physical sciences, adequate training in mathematics, and a 2.75 minimum grade point average.

All courses carry 3 credits unless otherwise specified.

530 Radiation Physics
For science majors specializing in nuclear medicine, radiology, environmental sciences, radiation protection, and applied areas using ionizing radiations. Principles of atoms and nuclei, radioactivity, interaction of radiation with matter, radiation detectors and meth-

ods, applications of radioactive and stable nuclei as tracers. Special topics. Three lectures weekly; three-hour laboratory once every two weeks. Prerequisite, permission of instructor.
Credit, 4.

531 Electronics Instrumentation for Scientists I
A laboratory oriented course. Basic electronics principles, servo systems, operational amplifiers, digital circuits, other modern devices. Prerequisite, permission of instructor. 2 class hours, 1 4-hour laboratory period.
Credits, 4.

532 Electronic Instrumentation for Scientists II
Digital Electronics. Prerequisite, Physics 531.

535,536 (I) (II) Advanced Experimental Work
Selected experiments and projects, according to the needs of individual student. Prerequisite, Physics 551.
Credit, 1 to 3 each semester.

551 Applied Quantum Mechanics
Application of quantum principles to materials and the interaction of radiation with matter. Topics include electron-nuclear interactions, nuclear magnetic resonance, masers, lasers, optical pumping, band theory of semiconductors, and superconductivity. Prerequisite, Physics 424.

553 Optics
Geometric optics and classical treatment of the interaction of radiation with matter. Light as a statistical process; correlation functions. Interference and spatial coherence. Fabry-Perot interferometers, Fourier transform spectroscopy, photodetectors, modern technique of spectral analysis. Prerequisites, Physics 422, 424.

555 Hydromechanics
Introduction to theoretical fluid mechanics. Development of general equations of motion. Solution of problems involving pressure and gravitational and viscous forces. Laminar and turbulent flow. Kinematics and dynamics of real fluids. Treatment of hydromechanic instabilities. Prerequisite, Physics 421.

558 Solid State Physics
Introduction to theoretical and experimental physics of the solid state. Prerequisites, Physics 424 or 301; 423.

562 Advanced Electricity and Magnetism
Description of electric and magnetic fields in a dynamical context—electromagnetic radiation theory, optics, plasma physics, relativistic electrodynamics, cavity resonators, waveguides. Prerequisites, Physics 422.

563 Non-Equilibrium Statistical Physics
Non-equilibrium statistical processes. Transport theory, the Boltzmann equation. Prerequisite, Physics 423.

564 Introductory Quantum Mechanics
Breakdown of classical physics, wave mechanics including the Schroedinger equation and its interpretation, one-dimensional problems, uncertainty principle, harmonic oscillator, hydrogen atom.

601 Classical Mechanics
Lagrange's and Hamilton's equations, central force problem, rigid bodies, small oscillations, continuum mechanics, fluid dynamics. Prerequisites, Physics 421, 422.

602 Statistical Physics
Survey of thermodynamics. Boltzmann distribution, statistical interpretation of thermodynamics, Gibbsian ensembles and the method of Darwin, Fowler; quantum distributions and their applications, transport phenomena. Prerequisites, Physics 564, 601, 606 (the latter may be taken concurrently).

605 Methods of Mathematical Physics
Selected topics with application to physics in linear algebra and Hilbert space theory, complex variables, Green's functions, partial differential equations, integral transforms, integral equations.
Credit, 4.

606 Classical Electrodynamics I
Electrostatic fields in vacuum and material media, two and three dimensional potential problems, the magnetostatic field, interaction of steady currents, Maxwell's equations, the electromagnetic field, special relativity, and covariant formulation of electrodynamics. Prerequisites, Physics 601, 605.

607 Classical Electrodynamics II
The field of a moving charge, the Lienard-Wiechert potentials, Lorentz transformation and special relativity, covariant formulation of Maxwell's equations. Radiation of electromagnetic waves, the near field and far field, radiation damping and self fields, spectral resolution of radiation. Magnetohydrodynamics and plasma physics, collisions, scattering and absorption. Prerequisite, Physics 606.

614 Intermediate Quantum Mechanics I
Abstract quantum mechanics, Hilbert space, representation theory, three dimensional problems, angular momentum, spin, vector coupling, bound state perturbation theory, variational method.

615 Intermediate Quantum Mechanics II
Time dependent perturbation theory, semi-classical and quantum treatment of radiation, scattering theory, group theory.

696 Independent Study
Special study in some branch of physics either theoretical or experimental, under direction of a faculty member.

699 Master's Thesis
Credit, 6.

710 Advanced Quantum Mechanics IV
Semi-classical radiation theory, non-relativistic second quantization, advanced scattering theory, relativistic wave equations. Prerequisite, Physics 615.

711 Biophysics I
The physics of biological systems including the physical properties of water, thermodynamics and statistical properties of biological processes, and diffusion processes. Prerequisites, Physics 605 or Chem. 785, Physics 564 or Chem 791, or permission of instructor.

712 Biophysics II
Physical techniques applied to measurements on biological systems. Light scattering, microscopy, x-ray crystallography, magnetic resonance, and the use of ionizing radiation. May be taken independent of Physics 711. Prerequisites, same as for Physics 711.

714 Introductory High Energy Physics
General introduction to the physics of elementary particles treating invariance principles, strange particles, final state interactions and resonances, internal symmetries, introduction to the theories of strong, electromagnetic, and weak interactions. Prerequisite, Physics 614.

715 Introductory Solid State Physics
Solids treated as translational symmetry structures, and their effect in x-ray and particle scattering, thermal and vibrational properties of solids. Binding

energy of solids, electronics in periodic potentials, and formation of bands. The free electron model of metals. Prerequisite, Physics 614.

716 Introduction to Superfluidity and Superconductivity
Description of fundamental experiments and properties of superfluid ^{4}He, ^{3}He and superconductors. The two fluid model, elementary excitations, fluid structure, vortices, superfluid films and macroscopic quantum effects in superfluidity. Type I and II superconductors, the mixed state, the Meisner effect, superconducting junctions and an introduction to devices.

718 Basic Physics of Atoms and Molecules
Quantum description of free atoms and molecules and their interactions with external fields, radiation, and electrons. Prerequisite, Physics 564.

719 Nuclear Physics
Basic concepts of nuclear physics, instruments and methods. Topics include natural radioactivity, nuclear radiations—their properties and interaction with matter, nuclear-radiation detectors, electrostatic and magnetic analyzers, mass spectrometry, charged particle accelerators, elementary discussion of alpha and beta decay, nuclear isomerism, internal conversion, nuclear reactions, neutron physics, fissions, nuclear spin and magnetic moments, cosmic rays and elementary particles. Prerequisite, Physics 564 or equivalent.

723 Topics in Mathematical Physics
Subjects vary somewhat depending on the instructor, but probably include applications of the theory of functions, group theory and symmetries, Hilbert and Banach spaces in quantum mechanics. Prerequisites, Physics 605 and permission of instructor.

724 Group Theory in Quantum Mechanics
Finite dimensional groups and their representations; representations of the permutation group; representations of Sun, tensor representations, decomposition of direct product representations; three-dimensional rotation group. Clebsch-Gordon and Racah coefficients; the Lorentz group and its representations; applications to atomic, solid state, nuclear and high energy physics. Prerequisites, Physics 615.

811 Field Theory
Relativistic quantum mechanics of a single particle. Klein-Gordon and Dirac equations, formal scattering theory, field quantization, interacting fields, S-matrix, reduction formulae, perturbation theory and Feynman diagrams renormalization, dispersion relations, and recent developments. Prerequisites, Physics 710.

813 High Energy Physics
Experimental and theoretical aspects of: meson and baryon resonances; leptonic and non-leptonic, strangeness changing and non-changings weak decays; high energy experiments and the phenomenology of Regge poles. Topics vary with the instructor. Prerequisite, Physics 714.

816 Solid State Physics
Transport phenomena in solids including semiconductors, optical properties of solids, superconductivity, superfluidity, magnetism. Topics vary with the instructor. Prerequisite, Physics 715.

817 Advanced Statistical Physics
Phase transitions, including condensation; description of imperfect gases. Transport theory and other nonequilibrium phenomena. Irreversible processes. Field theoretic quantum statistical physics. Prerequisites, Physics 602.

818 Atomic Structure
An advanced course covering the field of atomic structure including the theory of complex spectra, fine structure, hyperfine structure, electron spin, Zeeman effect, the theory of atomic collisions, general theory of multiplets and magnetic and radiative properties of atoms. Prerequisite, Physics 615.

820 Nuclear Theory
A theoretical understanding of nuclear structure. Topics include internucleon forces, the deutron and the two-body problem, nuclear models and structure of complex nuclei, electromagnetic properties of nuclei, theory of alpha and beta decay, theory of nuclear reactions. Prerequisites, Physics 615 and 719.

821 Relativity
Mathematical and conceptual aspects of the special and general theories of relativity. Lorentz transformations, covariant formulation of the laws of nature. The equivalence principle, curved spaces, solutions of the equations of relativity. Prerequisites, Physics 607.

850 Advanced Topics in Physics
One or more subjects of special interest covered in lectures. Prerequisite, permission of instructor.

851 Special Topics in Nuclear Physics
Advanced and current topics in nuclear physics. Prerequisite, Physics 820.

852 Special Topics in High Energy Physics
Advanced and current topics in high energy physics. Prerequisite, Physics 813.

853 Special Topics in Solid State Physics
Advanced and current topics in solid state physics. Prerequisite, Physics 816.

854 Special Topics in Atomic Physics
Advanced and current topics in atomic physics. Prerequisite, Physics 818.

860 Seminar on Research Topics
Instruction via reading assignments and seminars on research topics not currently covered in regular courses. Prerequisite, permission of instructor.
Credit, 1-3

899 Doctoral Dissertation
Credit, 18.

Graduate Faculty

Allen V. Barker, *Professor of Plant and Soil Sciences and Head of the Department,* B.S., Illinois, 1958; M.S., Cornell, 1959; Ph.D., 1962.

Douglas L. Airhart, *Assistant Professor of Plant Science,* B.S., California at Davis, 1970; M.S., Wisconsin, 1972; Ph.D., Georgia, 1977.

John H. Baker, *Professor of Soil Science,* B.S., Massachusetts, 1952; M.S., Cornell, 1954; Ph.D., 1959.

Alfred W. Boicourt, *Professor of Plant Science,* B.S., Cornell, 1938; M.S., 1941.

William J. Bramlage, *Professor of Plant Science,* B.S., Ohio State, 1959; M.S., Maryland, 1961; Ph.D., 1963.

Robert A. Coler, *Associate Professor of Environmental Sciences,* B.A., State University of New York; M.A., 1954; Ph.D., Syracuse, 1960.

Lyle E. Craker, *Associate Professor of Plant Science,* B.S., Wisconsin, 1963; Ph.D., Minnesota, 1967.

Mack Drake, *Professor of Plant and Soil Sciences,* B.S., Purdue, 1937; M.S., Purdue and Alabama Polytechnic, 1939; Ph.D., 1946.

Walton C. Galinat, *Professor of Plant Science,* B.S., Connecticut, 1949; M.S., Wisconsin, 1951; Ph.D., 1953.

George B. Goddard, *Associate Professor of Plant Science,* B.S., Massachusetts, 1954; M.S., 1958; Ph.D., 1963.

Duane W. Greene, *Associate Professor of Plant Science,* B.S., Colgate, 1964; M.S., Michigan State, 1966; Ph.D., 1969.

Haim B. Gunner, *Professor of Environmental Sciences,* B.S.A., University of Toronto, 1946; M.Sc., University of Manitoba, 1948; Ph.D., Cornell, 1962.

John R. Havis, *Professor of Plant Science,* B.S., Texas Technological, 1942; M.S., Cornell, 1947; Ph.D., 1949.

Daniel Hillel, *Professor of Soil Science,* B.S., Georgia, 1950; M.S., Rutgers, 1951; Ph.D., Hebrew University, Jerusalem, 1958.

Paul H. Jennings, *Associate Professor of Plant Science,* B.V.A., Massachusetts, 1960; M.S., North Carolina State, 1962; Ph.D., 1965.

Warren Litsky, *Commonwealth Professor of Environmental Sciences,* B.A., Clark, 1945; M.S., Massachusetts, 1948; Ph.D., Michigan State, 1951.

Linda G. Lockwood, *Associate Professor of Environmental Sciences,* B.S., Columbia, 1960; M.A., 1961; 1965; Ph.D., 1969.

William J. Lord, *Professor of Plant Science,* B.S., New Hampshire, 1943; M.S., 1953; Ph.D., Pennsylvania State, 1955.

J. David Mackenzie, *Assistant Professor of Plant Science,* B.A., Oral Roberts, 1972; Ph.D., Cornell, 1977.

Donald N. Maynard, *Professor of Plant Science,* B.S., Connecticut, 1954; M.S., North Carolina State, 1956; Ph.D., Massachusetts, 1963.

Robert J. Precheur, *Assistant Professor of Plant Science,* B.S., Delaware Valley, 1969; M.S., Purdue, 1971; Ph.D., Kansas State, 1977.

William A. Rosenau, *Professor of Plant and Soil Sciences,* B.S., Yale, 1948; M.S., Connecticut, 1950; Ph.D., Pennsylvania State, 1961.

Franklin W. Southwick, *Professor of Plant Science,* B.S., Massachusetts, 1939; M.S., Ohio State, 1940; Ph.D., Cornell, 1943.

Joseph Troll, *Professor of Plant Science,* B.S., Rhode Island, 1954; M.S., 1957; Ph.D., Massachusetts, 1965.

Petrus L.M. Veneman, *Assistant Professor of Soil Science,* B.S., Landbouwhogeschool, Wageningen; M.S., Wisconsin, 1975; Ph.D., 1977.

Jonas Vengris, *Professor of Plant Science,* Agr. College, Lithuania, 1934; Diploma, 1936; Dr. Agr. Sci., University of Bonn, Germany, 1939.

Robert W. Walker, *Assistant Professor of Environmental Sciences,* B.S., Massachusetts, 1955; M.S., 1959; Ph.D., Michigan State, 1963.

John M. Zak, *Professor of Plant and Soil Sciences,* B.S., Massachusetts, 1936; M.S., 1938.

The Department of Plant and Soil Sciences offers doctoral work in either Plant Science or Soil Science. Specialization and thesis problems related to horticultural and agronomic plants and in soil science are available to both Master of Science and Doctor of Philosophy degree candidates.

The department has no foreign-language requirement for the doctoral degree.

All courses carry 3 credits unless otherwise specified.

515 Microbiology of the Soil
Soil micro-organisms; their distribution, ecology and transformation of organic and inorganic substrates. Microbiology of the rhizosphere and the biological equilibrium. Prerequisite, Microbiol 250 or permission of instructor. Mr. Gunner

530 Plant Nutrition
Lectures and laboratories dealing with the accumulation and transport of inorganic ions in plants and their function in plant metabolism. Prerequisite: Plant and Soil Sci. 100 and 105 or equivalent, Chem. 111 and 112 or equivalent. Mr. Barker Mr. Maynard

535 Taxonomy of Economic Plants
Study and keying of plant families, genera, species and cultivars of importance in the horticultural and agronomic fields. Mr. Boicourt

540 Plant Breeding
Advanced study of genetic topics peculiar to plants; the methods and problems of the plant breeder. Prerequisite: Zool. 240 or equivalent.
Mr. Mackenzie

545 Post-Harvest Physiology
Physiological and biochemical processes occurring in fruits, vegetables, and flowers after harvest, and the effects of environmental modifications on these processes in maintaining quality and prolonging their useful life.
Mr. Bramlage

555 Environmental Stress in Plants
Identification of environmental stresses affecting plant growth. Discussion of the physiological effects of environmental stresses on plants. Lab experiments to illustrate long and short term effects of environmental stress. Prerequisites, a course in plant physiology or permission of instructor. Mr. Jennings, Mr. Marsh

560 Ecology and Control of Weeds
Identification and ecology of common weeds and principles of weed control. Emphasis on the use of chemical herbicides. Mr. Vengris

565 Soil Formation and Classification
The development of soils as related to physical, chemical, biological, climatic and geological factors. Mr. Veneman
Credit, 4.

'0 Soil Physics
Physical properties of soils: water and pollutant retention and transport; soil, air, temperature, texture and structure; their measurements, evaluations, environmental implications and influence in the soil-water-plant continuum. Prerequisites, introductory course in physics, mathematics or chemistry, or permission of instructor. Mr. Hillel

5 Soil Chemistry
Soil chemical properties as related to chemical reactions of plant nutrients in soils. Prerequisites, Chem. 112 and Plant and Soil Sci. 105 or equivalent.
Mr. Baker

0 Soil Fertility
Mineral nutrients in the growth of plants; the use of fertilizers and other soil amendments; soil reaction; mineral deficiencies and toxicities in plants.
Mr. Drake

2 Research Literature
A critical review of the scientific literature in an area of specialization.
Credit, 3 each semester.

0 Morphology of Economic Crops
The anatomy of the plant body with emphasis on those structures which have horticultural and agronomic significance. Prerequisite, Botany 291 or permission of instructor. Mr. Goddard

6 Special Problems
Selected research problems which are not related to a candidate's thesis.
Credit, 3 each semester.

9 Master's Thesis
Credit, 10.

5 Microbial Ecology of the Soil
The biochemistry and physiology of interactions among micro-organisms in the soil environment and their relationships with the soil environment. Lectures, discussion and a critical review of current literature. Prerequisite, Plant and Soil Sci. 515 (615) or permission of instructor. Mr. Gunner

2 Research Literature
A critical review of the scientific literature in an area of specialization.
Credit, 3 each semester.

5 Plant Growth Regulators
Recent advances in the field of plant growth regulators; including auxins, gibberellins, cytokinins, abscisic acid, ethylene and phytochrome. Emphasis on investigations of the mechanisms whereby these materials control plant growth and development. Prerequisites, Botany 511 or equivalent.
Mr. Craker, Mr. Marsh, Mr. Rubenstein

830 Advanced Soil Chemistry
Lecture and discussion of current theories of the chemistry of soils. Prerequisite, permission of instructor.
Mr. Baker

850 Plant Photosynthesis
Lectures and discussion of the mechanisms and requirements for photosynthesis in higher plants. Relation of photosynthesis and related processes to crop productivity is stressed. Prerequisites, Botany 512 or Chem. 524 or equivalent. Mr. Barker

860 Nitrogen Metabolism
A comprehensive presentation of nitrogen metabolism in plants covering nitrogen fixation, nitrate reduction, synthesis, metabolism, and degradation of the major nitrogenous compounds. Prerequisites, Botany 512 or equivalent.
Mr. Marsh

891 Seminar
Required of all graduate students majoring in the Department.
Credit, 1 each semester.

896 Special Problems
Selected research problems which are not related to a candidate's dissertation.
Credit, 3 each semester.

899 Doctoral Dissertation
Maximum credit, 18.

Graduate Faculty

Richard A. Rohde, *Professor, Head of the Department of Plant Pathology, and Graduate Program Director,* A.B., Drew, 1951; M.S., Maryland, 1956; Ph.D., 1958.

George N. Agrios, *Professor,* B.S., University of Thessaloniki, Greece, 1957; Ph.D., Iowa State, 1960.

William A. Feder, *Professor,* B.A., Johns Hopkins, 1941; Ph.D., California at Berkeley, 1950.

Francis W. Holmes, *Professor,* B.A., Oberlin, 1950; Ph.D., Cornell, 1954.

William J. Manning, *Associate Professor,* B.S., Michigan State, 1963; M.S., Delaware, 1966; Ph.D., 1968.

Mark S. Mount, *Associate Professor,* B.S., Illinois Wesleyan, 1963; M.S., Michigan State, 1965; Ph.D., 1968.

William N. Rice, *Associate Professor,* B.S., Sioux Falls, 1936; M.S., Iowa State, 1939; Ph.D., 1944.

Terry A. Tattar, *Assistant Professor,* B.A., Northeastern, 1967; Ph.D., New Hampshire, 1971.

Bert M. Zuckerman, *Professor,* B.S., North Carolina State, 1948; M.S., N.Y. State College of Forestry, 1949; Ph.D., Illinois, 1954.

Students accepted for graduate study towards the Master of Science or Doctor of Philosophy degree are expected to have fulfilled the usual requirements for a bachelor's degree in a related discipline. Requirements for the M.S. degree ordinarily include a thesis, but course work, including Plant Pathology 700, may be substituted with permission of the adviser and Graduate Studies Committee. Facilities at the Suburban Experimental Station, Waltham, and the Cranberry Experiment Station, East Wareham, are available for projects in special areas. The department has no foreign-language requirement.

All courses carry 3 credits unless otherwise specified.

500 Plant Pathology
The causes, nature and control of plant diseases. Diagnosis of plant diseases. Mechanisms, biochemistry and genetics of plant disease induction, development and control. Prerequisite, a course in Botany. Mr. Agrios

510 Forest and Shade Tree Pathology
The causes, nature and control of tree diseases. Physiology and genetics of host-parasite-environment interaction in trees. Forest and shade tree disease management and principles of decay prevention in forest products.
Mr. Tattar

520 Genetics of Plant-Pathogen Interaction
Characterization of genetic factors which control plant disease reaction and virulence. The influence of environment on genetic stability of pathogens. Mutations, parasexuality, and plant population genetics in relation to disease development. Prerequisite, Plant Path 251 or 551. Mr. Mount

530 Plant Virology
Plant virus structure, infection, synthesis, assay and purification. Symptomatology and physiology of virus infected plants. Transmission, identification and control of plant viruses. Virus diseases of major plant groups. Prerequisite, Plant Path 251 or 551 or permission of instructor. Mr. Agrios
Credit, 4.

540 Nematology
Anatomy, morphology, and classification of plant-parasitic and other soil-inhabiting nematodes. Parasitic relationships with plants and current control-measures stressed. Prerequisite, a year of biological science. Mr. Rohde
Credit, 4.

600 Forest Pathology
Review and critical examination of the recent developments in the major problem areas in forest pathology. Format is informal group discussion. Prerequisite, Plant Path 569. Mr. Tattar

699 Master's Thesis
Credit, 10.

700 Advanced Plant Pathology—Parasitism and Pathogenesis
The physiology of diseased plants. Emphasis on the biochemical and physiological changes induced in the host by plant pathogens. Laboratory consists of biochemical investigations of diseased plants. Prerequisite, Plant Path 551.
Credit, 4. Mr. Mount

791 Seminar
Reports and discussion on the current literature and research in plant pathology; special reports by resident and visiting speakers. One class hour.
Credit, 1 each semester.

899 Doctoral Dissertation
Credit, 18.

Political Science

Graduate Faculty

Glen Gordon, *Professor and Chairman of the Department of Political Science,* B.A New York, 1952; M.A., Chicago, 1957; Ph.D., 1963.

Jerome B. King, *Professor and Graduate Program Director,* B.A., Dartmouth, 194 M.S., Stanford, 1954; Ph.D., 1958.

Dean Alfange, Jr., *Professor and Dean of the Faculty of Social and Behavioral Sciences,* B.A., Hamilton, 1950; M.A., Colorado, 1960; Ph.D., Cornell, 1967.

Luther A. Allen, *Professor,* B.A., Williams, 1941; M.A., State University of Iowa, 1942; Ph.D., Chicago, 1952.

David A. Booth, *Professor,* B.S., London School of Economics, 1952; M.A., Virginia, 1953; Ph.D., 1957.

Gerard Braunthal, *Professor,* B.A., Queens, 1947; M.A., Michigan, 1948; Ph.D., Columbia, 1953.

John Brigham, *Assistant Professor,* B.A. California at Berkeley, 1967; M.A., Wisconsin, 1970; Ph.D., California at Santa Barbara, 1974.

William E. Connolly, *Professor,* B.A., Michigan at Flint, 1960; M.A., 1962; Ph.D.,. Michigan at Ann Arbor, 1965.

Kenneth M. Dolbeare, *Professor,* B.A., Haverford, 1951; Ll.B., Brooklyn Law School, 1958; Ph.D., Columbia, 1965.

Patrick Eagan, *Assistant Professor,* B.S., Regis, 1952; M.A., Colorado State, 1955; Ph.D., California at Riverside, 1971.

Eric Einhorn, *Associate Professor,* B.A., Pennsylvania, 1965; M.A., Harvard, 1968 Ph.D., 1972.

Jean B. Elshtain, *Associate Professor,* B.A., Colorado State, 1963; M.A., Colorado, 1965; Ph.D., Brandeis, 1973.

Edward E. Feit, *Professor,* B.A., Witwaterstrand, 1944; M.A., University of South Africa, 1949; Ph.D., Michigan, 1965.

John H. Fenton, *Commonwealth Professor of Governnment,* B.A., Kentucky, 1948; M.A., 1951; Ph.D., Harvard, 1956.

Peter J. Fliess, *Professor,* B.A., Stanford, 1944; M.A., Harvard, 1947; Ph.D., 1951.

Harvey L. Friedman, *Associate Professor and Director of the Labor Relations and Research Center,* J.D., Boston, 1947.

Edwin Andrus Gere, Jr., *Associate Professor,* B.A., Alfred, 1948; M.A., Pennsylvania State, 1956; Ph.D., New York at Albany, 1968.

Sheldon Goldman, *Professor,* B.A., New York University, 1961; M.A., Harvard, 1964; Ph.D., 1965.

Franklin W. Houn, *Professor,* B.A., National Chenchi University, 1946; M.A., Denver, 1950; Ph.D., Wisconsin, 1953.

Irving Howards, *Professor,* B.A., Wisconsin, 1953; M.A., 1955; Ph.D., 1957.

Harvey Kline, *Associate Professor,* B.A., North Carolina, 1966; Ph.D., Texas, 1970.

Fred A. Kramer, *Associate Professor,* B.A., Johns Hopkins, 1963; M.A., Rutgers, 1964; Ph.D., Syracuse, 1969.

John W. Lederle, *Joseph B. Ely Professor,* B.A., Michigan, 1933; M.A., 1934; LL.B., 1936; Ph.D., 1942.

Guenter Lewy, *Professor,* B.S.S., City College of New York, 1951; M.A., Columbia, 1952; Ph.D., 1957.

Lewis C. Mainzer, *Professor,* B.A., New York, 1948; M.A., Chicago, 1950; Ph.D., 1956.

John M. Maki, *Professor,* B.A., Washington, 1932; M.A., 1936; Ph.D., Harvard, 1948.

Jerome M. Mileur, *Associate Professor,* B.A., Southern Illinois, 1955; M.A., Illinois, 1958; Ph.D., Southern Illinois, 1971.

Felix E. Oppenheim, *Professor of Political Science and of Philosophy,* Docteur-en-droit, Brussels, 1938; Ph.D., Princeton, 1942.

Paul L. Puryear, *Professor,* B.A., Talladega, 1953; M.A., Chicago, 1955; Ph.D., 1960.

Karl W. Ryavec, *Associate Professor,* B.A., Miami, 1957; M.A., Columbia, 1962; Ph.D., 1968.

Robert A. Shanley, *Associate Professor,* B.A., Columbia, 1946; M.A., 1948; Ph.D., Georgetown, 1955.

George T. Sulzner, *Associate Professor,* B.A., Muskingum, 1959; M.A., Michigan, 1961; Ph.D., 1967.

Anwar H. Syed, *Professor,* B.A., University of the Panjab, 1946; M.A., 1951; M.A., Chicago, 1953; M.A., Pennsylvania, 1954; Ph.D., 1957.

Howard J. Wiarda, *Professor,* B.A., Michigan, 1961; M.A., Florida, 1962; Ph.D., 1965.

The Department of Political Science offers graduate work leading to the Master of Arts, Master of Public Administration, and Doctor of Philosophy degrees. Detailed information on requirements for degrees may be obtained from the Department of Political Science.

In some subfields there is a proseminar which prepares beginning students for the more specialized advanced seminars by acquainting them with the fundamental concepts, theories, modes of inquiry, and research findings. In all subfields there are tutorials and directed studies courses. The tutorial is basically a reading course, the content of which is arranged by agreement of one or more students and a professor. Generally a tutorial treats a topic of their mutual interest not covered by existing formal courses. The directed studies course is a specialized advanced seminar which covers a topic not offered in regular seminar form; it is an in-depth study of a particular aspect of a subfield, and varies with the interests of professors and students.

The Master of Public Administration program, though academic in content, is especially suited to those planning, or currently embarked upon, a career in the public service. It typically necessitates one year of course work. An internship or public service work experience is required.

All courses carry 3 credits unless otherwise specified.

Thesis and Dissertation

699 Master's Thesis
Credit, 6.

899 Doctoral Dissertation
Credit, 10.

American National Government and Politics

605 The Legislative Process
The role of the legislature in national and state government. The functions of legislatures; legislative procedures; the role of political parties and pressure groups in the legislative process.

608 Public Opinion in Politics
Opinion and communication as aspects of the political process. Emphasis on communication through mass media. The relations between mass attitudes and communication and political institutions and the formation of public policy.

701 Tutorial in American Government and Politics

702 Directed Studies in American Government and Politics

703 Legislative Behavior
Selected topics in American legislative systems, national and state; attention to major research techniques and recent theoretical developments.

704 American Political Party Systems
The structure and activities of American parties and their impact on individual and group political behavior and on government and public policy. Focus on both national and state party systems.

705 Proseminar in American Government and Politics

State and Local Government and Politics

511 American Federalism
The American system of federalism as it has developed and expanded from the early years of the Republic to the present time. Emphasis on the changing nature of intergovernmental relations in both legal and programmatic terms.

514 Metropolitics
Main problems of North American metropolitan areas. Analysis of actual and possible solutions. Emphasis on political factors that impede and promote solutions, including the role of formal and informal groups involved in metropolitan change.

616 Comparative Local Government
The formal institutions and patterns of political behavior in cities of the world. Common urban problems, community participation, decision-making.

617 Massachusetts Politics
Analysis of the significant characteristics of Massachusetts politics as applied to political problems from an historical perspective with both a theoretical and practical base. Field work, readings, lectures, and discussions.

619 State Government and Politics
Problems, politics and issues of state governments in the U.S. Analysis of principal issues facing the states and of contemporary efforts to resolve them.

750 Proseminar in State and Local Politics

751 Tutorial in State and Local Politics

752 Directed Study in State and Local Politics

753 Urban Political Systems
Comparative analysis of relationships among socioeconomic, environmental, and political structures and processes, and public policy outcomes in cities. Research applications of contemporary concepts and theories.

754 Theory of Local Government
Theories of local government; general uniformities in the governmental process.

Public Administration and Policy Analysis

523 Public Personnel Administration
The personnel function in bureaucracy; patronage and merit; career service and political executives; authority and informal organization; employee rights and collective action.

524 Administrative Law
Governmental activities in the regulation of industry, agriculture, and labor. Emphasis on the legal framework within which these activities operate.

620 Public Administration
Organization of bureaucracy, bureaucratic life, constitutional position, and political role of governmental bureaucracy.

621 Government of Bureaucracies
Inquiry into the meaning and possibility of "democracy" within large-scale organizations.

625 Political Theory, Ideology and Public Policy
The evaluation of social policy; a consideration of normative issues raised in controversies concerning social and economic policy in the light of main traditions of Western political thought and the logical and ethical aspects of social choice.

626 American Public Policy
In-depth study of selected areas of American policy. May include theory of, and approaches to, the study of public policy.

627 Comparative Public Policy
A comparative analysis of policy formation; the process of social and economic policy decision-making in selected industrial societies; the interaction of institutions, ideas, and power in decisions concerning social welfare, economic planning, and related policy areas.

730 Proseminar in Public Administration

731 Tutorial in Public Administration

732 Public Policy Analysis
Theories, techniques and uses of policy analysis for decision-making in the public sector.

733 Public Administration: Organization
Behavior within governmental bureaucracy, in terms of the interaction between the individual and organizational influences.

734 Public Administration: Responsibility
The meaning and institutions of political responsibility of governmental bureaucracy.

735 Comparative Public Administration
Comparative analysis of the government administrative systems of the U.S., Britain, Canada, France, the U.S.S.R., and other selected countries.

736 Public Budgeting and Systematic Analysis
The theory and techniques of budgeting and systematic analysis and the political processes that relate these techniques to decision-making within the governmental organization.

737 Public Sector Labor Relations
(See Labor Studies 777)

739 Public Administration Internship Report
An internship experience in government service, including a supervised written report and an oral examination. Normally takes nine months to a year.

Comparative Government and Area Studies

631 Political Development and Modernization
Comparative analysis of political change and development in the emerging nations.

633 Government and Politics of the Middle East
A review of the dynamics of the traditional Islamic political system and of the transformation of that system under the impact of Western penetration of the Middle East. Contemporary Middle East politics with special reference to the politics of Israel, Syria, Lebanon and the UAR.

634 Government and Politics of Japan
Government and politics of modern Japan with emphasis on the post-194 period; descriptive analysis of structur and function of government and politica process.

635 East Central Europe
Survey of the major governments in th East Central European area with em phasis on the nature of Communist Part control. Governments of Czechoslovakia East Germany, Hungary, Poland Rumania, Yugoslavia, and others.

636 Government and Politics of the Soviet Union
Historical and ideological influences o Soviet politics; the interconnection o social and political institutions and pro cesses; membership, organization, an operation of the Communist Party; th state structure and law; and contem porary Soviet foreign policy. Prere quisite, Pol Sci 131, or History 100-101 or permission of instructor.

637 Government and Politics of China
An analysis of the genesis and dynamic of the Chinese Communist movement the ideology and organization of the par ty and the government, and majo domestic and foreign policies since 1949 with special reference to the Maoist at tempt to reform man and society as wel as to achieve modernization.

638 Government and Politics of South and Southeast Asia
Comparative study of the institution and dynamics of government and politic in South and Southeast Asia, especially India, Pakistan, Indonesia, and Malaysia, with reference to issues o political stability, economic develop ment, and relations with the U.S. and other great powers.

640 Government and Politics of South America
Comparative analysis of the interes groups, political parties, and govern ment institutions of the South American countries. Emphasis on the background and political culture in which Latin American politics and government take place.

641 Government and Politics of Central America and the Caribbean
Comparative analysis of the interes groups, political parties, and govern ment institutions of the Central Amer ican and Caribbean countries. Emphasis on communism and the role of the U.S.

742 The Politics of Sub-Saharan Africa
The organization and processes of African politics, centering on the general political problems facing contemporary African governments.

743 Comparative African Governments
Comparative study of the political process in five African states.

744 Politics of the Iberian Peninsula: The Political Systems of Spain and Portugal
The unique aspects of the process of political development and/or decay in Spain and Portugal. Emphasis on the heritage of these two nations as reflected in their New World colonies in the Americas and on the present-day pattern of politics in the Iberian peninsula. Prerequisites, Pol Sci 131 or permission of instructor.

747 Armed Forces and Political Policy
Comparative study of civilian-military relations in the Western and non-Western nations, concentrating both on regular and irregular armed forces.

750 Proseminar in Comparative Politics

751 Tutorial in Comparative Politics

752 Directed Studies in Comparative Politics

753 Comparative Political Parties
The ideology, structure, and dynamics of diverse types of political parties, party systems, and electoral systems; their interrelationships.

754 Military Politics
Comparative study of contemporary problems in civilian-military relations.

761 Tutorial in Area Studies

762 Directed Studies in Area Studies

763 Politics of South Asia
Selected problems relating to government and politics of India, Pakistan, and Ceylon.

764 Politics of East Asia
Selected problems relating to the politics of China, Japan, and other Asian countries.

766 African Politics
Selected contemporary problems in African government and politics.

767 Latin American Politics
Comparative study of Latin American politics and government.

778 European Politics
Selected political cultures and systems in Europe.

779 Politics and Foreign Policies of the Middle East and North Africa
The regional and international politics of the Middle East and North Africa, focusing on questions and problems that promote conflict or collaboration in the area.

International Relations

556 International Law
The origin, character, and function of international law.

557 International Organization
International organization in the 20th century. Emphasis on the United Nations and regional organization.

650 Soviet Foreign Policy
An analysis of community and change in Soviet perceptions, goals, methods, and priorities in foreign policy. Emphasis on the period since World War II.

651 Chinese Foreign Policy
Examination of the geographical, historical, ideological, economic, military, and other factors in Peking's foreign policy since 1949. Emphasis on mainland China's relations with various countries and her positions on major international issues.

654 International Relations
The nation-state system and conceptions of national interest in modern world politics. Emphasis on forms and distribution of power, making of foreign policy, and adjusting of international conflict.

658 International Relations: Asia
Introduction to general problems of Asian international relations since 1859, with detailed examination of problems since World War I. Emphasis on China, Japan, and the new nations.

659 Western European Foreign Policies
Analysis of the emerging institutional patterns of the West European communities. Emphasis on the major political, military, and economic regional organizations and their relations with Communist nations and the United States.

720 Proseminar in International Relations

721 Tutorial in International Relations

722 Directed Studies in International Relations

723 Problems of International Relations
Analysis of major problems in international relations.

724 International Law and Organization
Analysis of major problems in international law and organization.

725 Theory of International Politics
Analysis and conceptualization of the forces and drives that condition politics among nations.

726 Nationalism
Analysis of nationalism as a political ideology with emphasis on its role in emergent nations.

727 Imperialism
Analysis of imperialism as a recurrent phenomenon in international relations with emphasis on the relations between advanced and emergent nations.

Public Law and Judicial Process

660 Constitutional Law
The United States Supreme Court and leading cases interpreting the United States Constitution.

661 Civil Liberties
The development in American Constitutional law of the concept of civil liberty, including the fields of free speech and religion, fair trial, and race discrimination. The function of courts in safeguarding these liberties.

662 Politics, Law and Judicial Behavior
American court systems including examination of the processing of cases, judicial backgrounds and selection, judicial decisional behavior, some major court policies and the responses to them from groups and institutions with the larger political system.

740 Proseminar in Public Law

741 Tutorial in Public Law

742 Directed Studies in Public Law

743 Law and the Political Process
The interrelationships between law and politics, and the functions of law in organized societies.

744 Theories of Law and Judicial Behavior
The theories of law, jurisprudence, and judicial behavior.

Political Theory and Methodology

578 Development and Practice of Soviet Marxism
The philosophic and religious origins of Soviet Communism in Western and Eastern Europe. Analysis of the classics from Marx to Khrushchev.

580 Quantitative Political Analysis
Introduction to basic applications of statistical techniques and reasoning to political data.

671 Modern Political Thought
Development of political thought and its relation to cultural and institutional growth from the rise of the modern state to the present.

674 Issues in Contemporary Political Theory
Some basic problems of political science, political ethics, and political philosophy through study of selected classical and modern political thinkers.

675 Feminist Politics and Political Theory
Sex as a category for analysis in classical and contemporary political theory. Relations between the sexes in relation to the larger political and social functions they serve.

760 Proseminar in Political Theory

761 Tutorial in Political Theory

762 Directed Studies in Political Theory

763 Recent Political Theory
Contemporary theories about the possibilities and limits of operationalism, behavioralism, and the decision-making approach in political science.

764 Church and State
Relations between western and non-western religions and the state; analysis of the ideas and other forces underlying this relationship, especially since 1918.

765 The Individual and the State
The problem of political obligation in political theory and in its historical and social contexts; the medieval right of resistance, the social contract, anarchism, resistance to totalitarianism, non-violent resistance, conscientious objection to war.

766 Philosophical Foundations of Political Science
Critical examination of the principal contemporary views concerning the methods of gaining knowledge of political phenomena.

767 Empirical Research in Political Behavior
Introduction to research techniques as applied to special problems in the field of political behavior. Emphasis on various approaches to the study of the individual voter, the American politician, interest groups and legislatures.

768 Revolutions and Revolutionary Movements
The phenomenon of revolution in modern times; the theory and practice of revolution in Jacobinism, Marxism, anarchism, Leninism, syndicalism, fascism, Castroism.

Polymer Science and Engineering

Graduate Faculty

William J. Mac Knight, *Professor and Head of the Department of Polymer Scien and Engineering and Adjunct Professor of Chemistry,* B.S., Rochester, 1958; M.A., Princeton, 1963; Ph.D., 1964.

Richard J. Farris, *Associate Professor, Graduate Program Director, and Adjunct Associate Professor of Civil Engineering,* M.S., Utah, 1969; Ph.D., 1970.

James C.W. Chien, *Professor of Chemistr*

Allen S. Hay, *Adjunct Professor,* B.Sc., Alberta, 1950; M.Sc., 1952; Ph.D., Illinoi 1955.

Frank E. Karasz, *Professor and Co-Director, Materials Research Laboratory,* B.S., Imperial College, University of London, 1954; Ph.D., Washington, 1957.

Robert L. Laurence, *Professor of Chemic Engineering.*

Robert W. Lenz, *Professor of Chemical Engineering.*

Stanley Middleman, *Professor of Chemica Engineering.*

Edward P. Otocka, *Adjunct Professor,* B.S., Lehigh, 1962; Ph.D., Polytechnic In stitute of Brooklyn, 1966.

Roger S. Porter, *Professor and Co-Directo Materials Research Laboratory,* B.S., California at Los Angeles, 1950; Ph.D., Washington at Seattle, 1956.

Isaac Sanchez, *Adjunct Professor,* B.S., St Mary's, 1963; Ph.D., Delaware, 1969.

Richard S. Stein, *Commonwealth Professo of Chemistry and Director of the Polymer Research Institute.*

Edwin L. Thomas, *Associate Professor,* B.S.M.E., Massachusetts, 1969; Ph.D., Co nell, 1973.

Otto Vogl, *Professor,* Ph.D., University of Vienna, 1950.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM

Admission Requirements

1. A B.S. or B.A. in chemistry, engineerin or physics.

2. Undergraduate work in two of the follo ing areas: Organic chemistry, Physical chen istry, Thermodynamics, Unit operations, ar Mechanics of materials.

uggested Program

Undergraduate courses in areas under above. Core and basic requirements as follows (Credits, 3,unless otherwise specified): 01 *Introduction to Polymer Science*; 502 *Polmer Science Lab*; 503 *Polymer Synthesis ab*; 760 *Organic Polymerization Reactions*; 88-9 *Physical Chemistry of High Polymers*; 57 *Rheology*; 758 Polymer Processing; *olymer Science and Engineering Electives*, -3 cr.; 891 *Polymer Science and Engineering eminar*, 1 cr. ea.; 786-7 *Research Proposal*, cr. ea; (Also, course electives (10-20 credits), language and comprehensive examinations s approved by Polymer Science and Engineering and as required by the Graduate chool); 899 *Dissertation*, 18 cr.

HE MASTER OF SCIENCE EGREE PROGRAM

equirements for admission are the same as ose for entry into Ph.D. Program.

uggested Programs

redits, 3 unless otherwise specified.

With thesis
01 *Introduction to Polymer Science*; 502 *Polmer Science Lab*; 760 *Organic Polyerization Reactions*; 788 *Physical Chemistry f High Polymers*; 757 *Rheology*; *Polymer cience and Engineering Electives*, 2-3 cr. ea.; 91 *Polymer Science and Engineering eminar*, 1 cr. ea.; 699 *Master's Thesis*, 10 cr.

Without thesis
01 *Introduction to Polymer Science*; 502 *Polmer Science Laboratory*; 760 *Organic olymerization Reactions*; 788 *Physical hemistry of High Polymers*; 757 *Rheology*; *olymer Science and Engineering Electives*, -3 cr. ea.; 696 *Introduction to Research*, 1-3 .; 891 (780) *Polymer Science and Engineerg Seminar*, 1 cr. ea. (Also, course electives lected from suggested list for the Ph.D. proram (brochure available from the Departent upon request).)

oth the master's and doctor's programs in olymer Science and Engineering are interisciplinary in nature and are designed to rovide a broad and fundamental education polymers. Entering students will normally ave a bachelor's or master's degree in chemtry, engineering, or physics. Flexibility in e first year's curriculum allows for basic ork in fields other than the student's undergraduate major and for prerequisites for adanced work in the PSE program. There is a asic core of courses within the PSE program, with sufficient electives to provide options for students with either a chemistry-physics emphasis or an engineering emphasis. An intermediate-level reading knowledge of one foreign language for all doctoral candidates. The language test is administered by the PSE Department.

All courses carry 3 credits unless otherwise specified.

501 Introduction to Polymer Science
Physical and organic chemistry of polymers for persons with basic training in chemistry, physics, or engineering. A survey of preparative methods of polymers, means of preparation of polymers of controlled structure, the physical chemistry of polymer molecules in solution, liquid and solid phases, thermodynamics and statistics of polymers, methods of characterization, mechanical properties of polymeric solids and fundamentals of industrial preparative and fabrication techniques. Prerequisite, one year of physical chemistry and one semester of organic chemistry and permission of instructor.

502 Polymer Science Laboratory.
Characterization of polymers by physical and physicochemical methods including colligation and rheological determination. Laboratory and one lecture hour/week. Technical report required. Mr. Chien

503 Polymer Synthesis Laboratory
Experiments performed to prepare and characterize the most important types of polymers. Radical, cationic, anionic polymerizations, copolymerizations, chain transfer in polymerizations as well as some typical processes for the preparation of polymers and the direct preparation of finished articles by monomer casting. Laboratory open one day a week, oral presentation of results.
Mr. Vogl

696 Introduction to Research
Independent student research on a specific project in polymer science or engineering, selected to teach research methods and techniques and to acquire new knowledge. Requirement, approval of the department head.
Credit, 1-3.

699 Master's Thesis
Credit, 6-10.

721 Microscopy and Morphology of Polymers
The use of the light and electron microscope. Phase contrast, interference methods, selected area diffraction, scattering techniques, and replication and decoration methods for the study and characterization of the morphology of polymeric structures. Two class hours, four laboratory hours per week. Prerequisites, PSE 501, general physics, optics desirable. Mr. Thomas

757 Rheology
Definition and measurement of rheological properties; continuum mechanics and constitutive equations; molecular theories of polymer deformation; correlation and interrelation of material functions. Relation of the various approaches taken in describing the viscous and viscoelastic properties of polymers, evaluation of these approaches; the role of modern rheology in the characterization and processing of polymers.
Mr. Middleman, Mr. Porter

758 Polymer Processing
Application of principles of chemical engineering to analysis of polymer processes such as extrusion, roll coating, mixing, etc. Applied fluid dynamics; some attention to heat and mass transfer. Prerequisite, PSE 757.
Mr. Middleman, Mr. Porter

786-787 Research Proposal
Students write and defend a proposal for an experimental investigation of a research problem not directly related to their thesis topic. The project selected requires approval of the thesis committee, and involves primarily library research.
Credit, 1 each semester.

760 Organic Polymerization Reactions
Mechanisms, kinetics, and thermodynamics of principal types of polymerization reactions. Also Chem 760. Prerequisites, PSE 501; Chem 551 or equivalent. Mr. Vogl

788-789 Physical Chemistry of High Polymers
Structure of solid polymers, determination of molecular weights, sizes and shapes, mechanical properties of solid polymers, colligative properties of polymer solutions, polyelectrolytes, and physical chemistry of proteins. Prerequisite, Chem 775 or equivalent.
Credit, 3 each semester
Mr. Karasz, Mr. Stein

Psychology

891 Polymer Science and Engineering Seminar
Students, staff members, and visitors present seminars dealing with current research and literature reviews in polymer science and engineering and in related areas of materials science. About two seminar hours per week.
Credit, 1 each semester.

899 Doctoral Dissertation
Credit, 18.

Related Courses

CH E 455 Applied Polymer Science

Biochem 728 Protein Physical Chemistry

ME 610 Mechanical Properties of Materials

ME 881 Selected Topics in Materials

CH E 631 Fluid Mechanics

CH E 632 Heat Transfer

Graduate Faculty

Norman Watt, *Professor and Chair of the Department of Psychology,* B.A., Northwestern, 1957; M.A., Ohio State, 1960; Ph.D., 1962.

Marvin Daehler, *Associate Professor and Associate Chair of the Department of Psychology,* B.A., Illinois, 1964; M.A., Minnesota, 1966; Ph.D., 1968.

Alice H. Eagly, *Professor and Graduate Program Director,* B.A., Radcliffe, 1960; M.A., Michigan, 1963; Ph.D., 1965.

Icek Ajzen, *Associate Professor,* B.A., Hebrew University of Jerusalem, 1967; M.A., Illinois, 1967; Ph.D., 1969.

Daniel Anderson, *Associate Professor,* B.S., Wisconsin, 1966; M.A., Brown, 1966; Ph.D., 1970.

Dee G. Appley, *Professor,* B.A., Denver, 1945; M.A., Michigan, 1949; Ph.D., 1952.

Michael A. Arbib, *Professor of Computer and Information Science and Adjunct Professor of Psychology.*

James R. Averill, *Professor,* B.A., San Jose State College, 1959; Ph.D., California at Los Angeles, 1966.

John J.B. Ayres, *Associate Professor,* B.A., William and Mary, 1961; M.A., Kentucky, 1963; Ph.D., 1965.

Seymour M. Berger, *Professor,* B.A., Oklahoma A and M College, 1949; M.A., Columbia, 1950; Ph.D., Cornell, 1959.

Richard S. Bogartz, *Professor,* B.A., California at Los Angeles, 1957; Ph.D., 1961.

Ronnie Bulman, *Assistant Professor,* B.A., Smith College, 1973; M.S., Northwestern, 1976; Ph.D., 1977.

Anthony Butterfield, *Professor of Business Administration and Adjunct Professor of Psychology.*

Neil Carlson, *Associate Professor,* A.B., Illinois, 1964; A.M., 1966; Ph.D., 1966.

Sheldon Cashdan, *Associate Professor,* B.S., City College of New York, 1958; M.A., North Carolina, 1963; Ph.D., 1965.

James I. Chumbley, *Associate Professor,* B.A., Drake, 1960; M.S., Indiana University, 1963; Ph.D., 1967.

Charles E. Clifton, Jr., *Professor,* B.A., Stanford, 1960; Ph.D., Minnesota, 1964.

Rachel K. Clifton, *Professor,* B.A., Ber 1959; M.A., Minnesota, 1960; Ph.D., 1963.

John W. Donahoe, *Professor,* B.A., Ker tucky, 1954; M.S., 1956; Ph.D., 1958.

William J. Duffy, *Associate Professor o Industrial Engineering and Adjunct Associate Professor of Psychology.*

Ernest Dzendolet, *Professor,* B.S., Calif nia Institute of Technology, 1951; M.S., Brown, 1957; Ph.D., 1959.

Seymour Epstein, *Professor,* B.A., Brooklyn College, 1948; M.A., Wisconsin 1951; Ph.D., 1953.

Robert Feldman, *Professor,* B.S., Michigan, 1943; M.S., 1944; Ph.D., 195

Robert Feldman, *Assistant Professor,* B.A., Wesleyan, 1970; M.S., Wisconsin, 1972; Ph.D., 1974.

Katherine V. Fite, *Associate Professor,* B.S., Florida State, 1963; M.S., Brown, 1967; Ph.D., 1969.

Mark I. Friedman, *Assistant Professor,* B.S., Maryland, 1968; Ph.D., Princeton, 1973.

Howard Gadlin, *Associate Professor,* B.A., Queens College, 1962; Ph.D., Michigan, 1966.

Stuart Golann, *Professor,* B.A., Queens College, 1957; M.A., North Carolina, 1959; Ph.D., 1961.

Richard Gold, *Associate Professor,* B.A. Middlebury, 1957; Ph.D., Chicago, 1966.

Richard Halgin, *Lecturer,* B.A., Mt. St Paul, 1970; M.A., Fordham, 1972; Ph.D 1975.

Ronald K. Hambleton, *Associate Professor of Education and Adjunct Associat Professor of Psychology.*

Morton G. Harmatz, *Professor,* B.A., Ohio State, 1960; M.A., Washington, 1962; Ph.D., 1963.

Geoffrey Hayward, *Assistant Professor, Institute for Man and Environment, and Adjunct Professor of Psychology.*

Harold Jarmon, *Professor,* B.A., New York, 1955; M.A., Kansas, 1959; Ph.D., 1962.

C. Dalton Jones, *Assistant Professor,* B.A Rutgers, 1962; M.S., Tufts, 1965; Ph.D., Cornell, 1973.

lan C. Kamil, *Associate Professor,* B.A., ofstra, 1963; M.S., Wisconsin, 1966; h.D., 1967.

lexandra Kaplan, *Assistant Professor,* .A., Michigan, 1963; Ph.D., Columbia, 968.

olis L. Kates, *Professor,* B.S., City Col- ge of New York, 1935; M.S., 1937; n.D., Columbia, 1948.

eorge Levinger, *Professor,* B.A., Colum- a, 1946; M.A., California at Berkeley, 951; Ph.D., Michigan, 1955.

lan Lieberman, *Assistant Professor,* S., Brooklyn College, 1953; M.A., Con- ecticut, 1955; Ph.D., 1960.

onnie C. McLoyd, *Assistant Professor,* .A., Talladega, 1971; M.A., Michigan, 973; Ph.D., 1975.

ohn W. Moore, *Professor,* B.A., awrence, 1958; Ph.D., Indiana, 1962.

anley M. Moss, *Professor,* B.A., Ohio ate, 1957; M.A., 1958; Ph.D., 1962.

rome L. Myers, *Professor,* B.A., racuse, 1953; M.A., Wisconsin, 1955; n.D., 1957.

ancy A. Myers, *Professor,* B.A., Mount olyoke, 1952; M.A., Wisconsin, 1954; n.D., 1957.

elinda Novak, *Assistant Professor,* B.A., onnecticut, 1967; M.A., Wisconsin, 1971; n.D., 1973.

exander Pollatsek, *Associate Professor,* S., Michigan, 1961; M.A., Harvard, 63; M.S., Michigan, 1964; M.A., 1965; n.D., 1969.

arold Raush, *Professor,* B.A., Michigan, 41; M.A., 1942; Ph.D., Stanford, 1950.

mes M. Royer, *Associate Professor,* A., Chico State, 1967; M.A., Illinois, 69; Ph.D., 1970.

arry Schumer, *Associate Professor,* B.S., nio State, 1954; M.A., 1956; Ph.D., 61.

orman Simonson, *Assistant Professor,* A., Rochester, 1960; Ph.D., Penn- vania State, 1968.

Alfred Southworth, *Professor,* B.S., S. Naval Academy, 1943; M.A., Har- rd, 1955; Ph.D., 1956.

N. Spinelli, *Professor of Computer and formation Science and Adjunct Professor Psychology.*

Ervin Staub, *Professor,* B.A., Minnesota, 1962; Ph.D., Stanford, 1965.

Ivan Steiner, *Professor,* B.A., Central Michigan, 1941; M.A., Michigan, 1948; Ph.D., 1952.

Bonnie R. Strickland, *Professor,* B.S., Alabama, 1958; M.A., Ohio State, 1960; Ph.D., 1962.

Beth Sulzer-Azaroff, *Professor,* B.S., City College of New York, 1950; M.A., 1953; Ph.D., Minnesota, 1966.

Hariharan Swaminathan, *Assistant Professor of Education and Adjunct Assistant Professor of Psychology.*

David M. Todd, *Associate Professor,* B.A., Alma, 1965; Ph.D., Michigan, 1971.

Gilbert C. Tolhurst, *Professor of Communication Disorders and Adjunct Professor of Psychology.*

Edward Tronick, *Associate Professor,* B.S., Cornell, 1964; M.S., 1965; Ph.D., Wisconsin, 1968.

Barbara F. Turner, *Associate Professor of Human Development and Adjunct Associate Professor of Psychology.*

Castellano B. Turner, *Associate Professor,* B.A., DePaul, 1957; M.A., 1963; Ph.D., Chicago, 1966.

George N. Wade, *Associate Professor,* B.S., Pennsylvania State, 1967; Ph.D., California at Berkeley, 1970.

Arnold Well, *Associate Professor,* B.S., McGill, 1961; M.S., Alberta, 1963; M.A., Oregon, 1966; Ph.D., 1969.

Alvin Winder, *Professor of Nursing and Adjunct Professor of Psychology.*

Patricia A. Wisocki, *Associate Professor,* B.A., Marygrove, 1965; M.A., Boston College, 1967; Ph.D., 1971.

The aim of the Graduate Program in Psychology is to train scientists and teachers who will pursue careers in the following general areas: Biopsychology (including animal, learning, physiological, sensory, and behavioral biology), Cognitive Processes, Clinical, Developmental, Educational (a joint program with the School of Education), Personality, and Social Psychology. Students may develop programs of study which cut across these established areas, e.g., between Biopsychology and Cognitive Processes, with the approval of the Graduate Program Director.

The aim of the program is implemented by a variety of course offerings as well as by experience in research and teaching. All students are required to take, directly or by examination, three courses outside their primary area of study in order to gain breadth of knowledge in psychology. Requirements also include two statistics courses. These "core" courses are complemented by specialized offerings, including field experience where applicable. A strong emphasis is placed on research, first with faculty, and then on individual student research which culminates in the doctoral dissertation. In addition, because a large percentage of our Ph.D.s pursue their careers in an academic setting, all students are required to participate in two semesters of teaching. Qualified students may be allowed to assume complete responsibility for small independent sections of larger courses.

All students are admitted to work toward the Ph.D. degree. However, the Master of Science degree is ordinarily earned after completion of 30 credits of study including a Master's thesis. The M.S. should be attained in two years, and the Ph.D. in four, except for the Ph.D. in Clinical Psychology for which an additional year's internship is required. Students may complete these requirements in less time.

There is no University or department-wide foreign language requirement for the student's program of study and research. The satisfactory completion of a basic course in Computer Science, or some other technical course, may be required for the Ph.D. degree. Such a course is usually completed early in the student's program of study so that it can serve subsequently as a research tool.

For admission, applicants should have 18 credits or semester hours of psychology courses beyond an introductory course. Included in these courses should be one in statistics and one in experimental psychology. The latter may be a laboratory course in either physiological, sensory, emotion and motivation, or learning and thinking. Applicants who have done outstanding work in other areas of study, but do not have the required undergraduate credits in psychology, are also encouraged to apply for admission to graduate work; however, they may be asked to make up some credits or courses. After satisfactory completion of a semester's work of advanced undergraduate courses, such students may petition the Department to waive any remaining undergraduate deficiencies.

In addition to the other Graduate School admission requirements, applicants should also submit to the Department the results of the Miller Analogies Test. Ordinarily, applications are accepted only for Fall semester admission.

All courses carry 3 credits unless otherwise specified.

605 Advanced Educational Psychology
Psychological principles and concepts as related to educative process and their application to teaching. Primarily for graduate students in Education, Psychology, and related fields. Permission of instructor required.

617 Human Information Processing I
Basic processes in human cognition and performance. Topics include visual form perception, attention, sensory memory, short term memory, and judgment.

618 Human Information Processing II
Complex aspects of human cognition and performance. Topics include long term memory, semantic memory, concept formation, thinking, and psycholinguistics.

620 Learning
Basic concepts and findings in conditioning and memory. An advanced survey course.

630 Physiological Psychology
An intensive overview of the field. Topics include an introduction to neuroanatomy, techniques used in investigations of brain function, the physiological bases of emotion, motivation, reward and punishment, species-typical behavior, learning, and memory.

640 Statistical Inference in Psychology
Application of statistical procedures to analysis of psychological data and to problems of measurement in psychology and related fields. Two class hours, one 2-hour laboratory period. Offered Fall semester. Prerequisites, Psych 100; and Psych 240 or Stat 121.

643 Research Methodology
Study and evaluation of research methods and of problems in the major fields of psychology. Can be repeated for additional credit.
Maximum credit, 12.

645 Problem in Psychology
A research project which may be taken at the master's or doctoral level. Can be repeated for additional credit. Maximum credit, 12.

650 Developmental Psychology
Selected issues, both historical and contemporary, in developmental psychology.

651 Theories of Child Development
The more relevant theories of child development, specifically those which have served as the impetus for experimental research with children. Theoretical analysis of the personality, social, and cognitive development of children.

660 Advanced Social Psychology
An overview of theory and experimental research in social psychology. Topics include social perception, attitude structure and change, dyadic interaction, and group processes.

661 Attitudes
Theory, methods, and data concerned with the nature and structure of attitudes and opinions, the formation of attitudes, and attitude change in response to communication and interpersonal influence. Prerequisite, Psych 660.

664 Group Dynamics
Interpersonal and group processes; attraction, influence, group structure, communication, cooperation, leadership, group performance. Focus on theory, experimentation, and special problems of the field. Prerequisite, Psych 660.

670 Personality
The basic concepts and principles, including theoretical research issues. Emphasis on recent research in specific areas of personality.

680 Clinical I
Roles and functions of clinicians in various settings, current professional issues. Introduction to assessment as related to alternative view of abnormality and personality. Permission of instructor required.

681 Laboratory in Clinical I
Applied experience appropriate to Clinical I. This experience is directed by clinical supervisors. Permission of instructor required.

681 Clinical II
Psychological evaluation with empha on theoretical and practical issues in i terviewing and testing procedures. P requisite, Psych 680.

683 Laboratory in Clinical II
Applied experience appropriate Clinical II. This experience is direct by clinical supervisors. Permission of i structor required.

684 Seminar in Clinical Research
A topic concerned with research clinical psychology. Can be repeated f additional credit.
Maximum credit, 12.

691-695 Seminars, Variable Titles
Selected topics of current significance psychology. Research studies analyz and theoretical advances explored. Pr requisite, permission of instructor r quired.
Credit, variable; can be repeated for additional credit.

696 Independent Study (Readings)
Credit, variable; can be repeated for additional credit.

699 Master's Thesis
Credit, 1-10; can be repeated for ada tional credit. Minimum credit, 1; ma imum, 10.

704 Systematic Psychology
The general structure of psychologic theory and an historical and compa ative consideration of the background viewpoints on scientific methodolog research interests and techniques, ar the component variables, hypothese and laws of structural, Gestalt, fun tional, and behavioristic movements.

705 Social Psychology in the Schools
Review and analysis of social psycholo ical literature as it pertaining to scho and educational issues. Emphasis c social interaction in the classroom. I permission of instructor required.

706 Psychology of Classroom Learning
Review and analysis of the findings psychology that pertain to instructio Emphasis on the practical control learning activities especially as seen i the classroom. By permission of instru tor required.

707 Environment, Behavior and Design Evaluation
An interdisciplinary problem-oriente course. Focus on a multifactor ap proach to design evaluation, includin

user-based evaluations, as an important component of the design process. Concepts, techniques, and qualitative and quantitative approaches from both the behavioral sciences and design professions reviewed and analyzed. Lectures, discussions and practicum sessions.

11 Sensory Processes I
Auditory, cutaneous senses, and labyrinthine senses; the fundamental data with their implications concerning functioning of these systems. Prerequisite, Psych 310 or 6 credits of advanced psychology or equivalent.

12 Sensory Processes II
Visual, gustatory, and olfactory sense; the fundamental data with their implications concerning functioning of these systems. Prerequisite, Psych 310 or 6 credits of advanced psychology or equivalent.

13 Topical Seminar in Sensory Psychology
A critical analysis of advanced topics in the field; emphasis on the current periodical literature. Prerequisite, one graduate course in physiological psychology or permission of instructor. Can be repeated for additional credit. Maximum credit, 12.

14 Perception
Primarily vision and audition. Stress on perceptual process, as opposed to sensory processes. The perception of form, space, depth; perceptual development and learning, etc. Prerequisite, Psych 310 or equivalent.

17 Seminar in Cognitive Processes
Selected topics in human cognition and performance, chosen from attention, judgment, choice, memory, sequential behavior, concept formation, and psycholinguistics.
1-6 credits; may be repeated for a maximum of 9 credits.

18 Seminar in Quantitative Theories of Behavior
Quantitative theories of selected behavioral phenomena. Topics selected from choice, detection and recognition, judgment, memory, learning, and concept-formation. Prerequisite, Psych 840 or permission of instructor.
1-6 credits; may be repeated for a maximum of 9 credits.

21 Conditioning
The fundamental principles and findings of classical conditioning. Topics include contemporary and traditional theories of conditioning, a critical evaluation of the relevant research literature, and the physiological bases of conditioning.

723 Animal Learning
The implications of the basic laws of learning for explaining complex aspects of animal learning. Topics may include stimulus control, reinforcement, aversive control, and attention.

724 Topical Seminar in Leaning Psychology
A critical analysis of advanced topics in the field of learning; emphasis on the current periodical literature. Prerequisite, one graduate course in learning or permission of instructor. Can be repeated for additional credit. Maximum credit, 12.

730 Advanced Physiological Psychology
In-depth analysis of modern concepts in the study of the physiological and biochemical bases of behavior. Prerequisite, permission of instructor required.

731 The Neuroanatomical Basis of Behavior
Structure and function of the mammalian nervous system as they relate to sensory-motor and motivational systems. Prerequisite, Psych 330 or equivalent, or permission of instructor.

732 Topical Seminar in Physiological Psychology
Advanced topics in the field of physiological psychology; emphasis on the current periodical literature. Prerequisite, one graduate course in physiological psychology or permission of instructor. Can be repeated for additional credit.
Maximum credit, 12.

733 Psychopharmacology
The neurochemical mechanisms of drugs that affect mood and behavior. Prerequisite, Psych 330, 535 or equivalent.

735 Emotion and Motivation
The nature, determinants, and interrelationships of emotion and motivation. Behavioral, ethological and physiological approaches considered.

740 Advanced Applied Statistics
Various experimental designs, the assumptions underlying their use, and the appropriate statistical analysis; orthogonal and randomized designs, trend analysis, non-parametric techniques, and multivariate analysis. Prerequisite, Psych 640 or equivalent.

741 Correlational Techniques
Reasoning and assumptions underlying correlation analysis; inference; introduction to multivariate techniques; partial correlation, multiple correlation and regression, introduction to factor analysis. Prerequisite, Psych 640, previously or concurrently, or permission of instructor.

742 Psychological Scaling
Theories underlying measurement and scaling in psychology and the social sciences; models of judgment and choice; models of psychological similarity; models of attitudes and abilities; a comparison of unidimensional and multidimensional approaches. Prerequisite, Psych 640, previously or concurrently, or permission of instructor.

750 Learning and Memory Processes in Children
Theoretical and experimental approaches to topics in learning and memory. Two class hours, one 2-hour laboratory period. By permission of instructor.

751 Cognitive Processes in Children
Piagetian, behavioristic, and information-processing approaches to research in conceptual development. Two class hours, one 2-hour laboratory period. Prerequisite, Psych 721 or permission of instructor.

752 Perceptual Development in Children
An introduction to theories of perceptual development, consideration of sensory and perceptual capabilities of the infant, and analysis of developmental changes in perception in the infant and older children.

753 Personality and Social Development in Children
Review and analysis of the literature on personality development and the socialization process in children. Prerequisite, Psych 370 or equivalent.

762 Social Judgment and Person Perception
The influence of culture, values, needs, and attitudes on perceptual judgments; judgmental and inferential processes about persons and interpersonal behavior. Prerequisites, Psych 660, or permission of instructor.

763 Social Learning
Concentration on theories of social learning, particularly those concerned with the analysis of the effectiveness of social reinforcement and observational learning. Prerequisite, 620 or equivalent.

771 Seminar in Personality
A topic concerned with personality. Can be repeated for additional credit. Maximum credit, 12.

780 Clinical III
Problem-formulating and problem-solving within various clinical situations and clinical models. Integration and communication of findings from psychological assessment. Lecture and laboratory. Permission of instructor required.

781 Clinical IV
The theory of the individual techniques of psychotherapy and demonstration of these techniques through video and other tapes, and role-playing. Prerequisite, Psych 780.

786 The Psychology of Exceptional Children
The etiology, diagnosis, and treatment of exceptional children, with emphasis on intellectual, social, physical, and sensory deviation. By permission of instructor.

787 Diagnosis and Treatment of Behavior Disorders in Children
The diagnosis and treatment of psychological maladjustments in infancy and childhood; treatment procedures, resources, and methods used in dealing with behavior and personality problems. Lectures, discussions, practicum sessions. Prerequisites, Psych 280, 750 and 780.

788 Seminar in Clinical Practice
A topic concerned with the practice of clinical psychology. Can be repeated for additional credit.
Maximum credit, 12.

789 Clinical Practicum
Practice in the application of psychological techniques to clinical settings and counseling. Taught with the staffs of cooperating institutions and agencies.
Credit, variable; can be repeated for additional credit.

791-795 Seminars, Variable Titles
Selected topics of current significance in psychology. Research studies analyzed and theoretical advances explored. Permission of instructor.
Credit, variable; can be repeated for additional credit.

796 Independent Study (Readings)
Credit, variable; can be repeated for additional credit.

798 Teaching Practicum in Psychology
Recommended for all doctoral candidates. Experience in procedures, leading discussion groups and teaching labs. Close supervision by faculty members. Students meet once a week to discuss problems in teaching. Credit variable; can be repeated for additional credit.

840 Quantitative Methods in Psychology
Mathematical descriptions of psychophysical and time-dependent data; parameter estimation; stochastic processes. Prerequisite, Psych 640 or equivalent.

882 Clinical V
Theoretical and research approaches to group and family therapies. Laboratory provides practicum experiences in these techniques. Prerequisite, Psych 781.

883 Seminar in Clinical Specialty
A topic concerned with a specialty area in clinical psychology. May be repeated for additional credit. Maximum credit, 12.

891-895 Seminars, Variable Titles
Selected topics of current significance in psychology. Research studies and theoretical advances explored. Prerequisite, permission of instructor.
Credit, variable; can be repeated for additional credit.

896 Independent Study (Readings)
Credit, variable; can be repeated for additional credit.

899 Doctoral Dissertation
Can be repeated for additional credit.
Minimum credit, 10, maximum, 27.

Related Courses

Computer and Information Science

603 Fundamentals of Cybernetics

683 Artificial Intelligence

782 Computational Cybernetics

784 Pattern Recognition

Education

516 Evaluation Models

705 Seminar-Applied Multivariate Analysis

705 Seminar—Psychometric Models

705 Seminar—Evaluation Design

731 Factor Analysis

735 Test Theory

820 Research Practicum in Education

Entomology

595 Evolution

611 Insect Behavior

Linguistics

601 Intensive Introduction to Transformational Grammar

711 Psycholinguistics: Language Acquisition

712 Psycholinguistics: The Perception of Linguistic Form

Sociology

725 Symbolic Interaction Seminar

729 Sociology of Small Groups

735 Social Movements

736 Collective Behavior

784 Advanced Sociological Theory

785 Complex Organizations

797 Survey Design and Analysis

Communication Studies

792 Theories of Hearing

Zoology

540 Principles of Genetics

600 Vertebrate Zoology

650 Animal Behavior

670 Comparative Physiology

680 Developmental Biology

750 Selected Topics in Animal Behavior

755 Systematics and Evolutionary Mechanisms

770 Comparative Neurophysiology

780 Physiological Regulatory Mechanisms

784 Endocrinology

Public Health

Graduate Faculty

William A. Darity, *Professor, Dean of the School of Health Sciences, Director of the Division of Public Health, and Graduate Program Director,* B.S., Shaw University, 1948; M.S.P.H., North Carolina Central, 1949; Ph.D., North Carolina at Chapel Hill, 1964.

Howard S. Berliner, *Assistant Professor,* B.A., Vermont, 1971; M.P.S., Cornell, 1973; Sc.D., Johns Hopkins, 1977.

Edward J. Calabrese, *Assistant Professor,* B.A., State College at Bridgewater, 1968; M.A., 1972; Ph.D., Massachusetts, 1973.

George P. Cernada, *Associate Professor,* B.S., Boston College, 1959; M.A., Indiana, 1961; M.P.H., University of California, 1965; Dr.P.H., 1975.

Yzz Lang Chen, *Assistant Professor,* M.Ed., National Taiwan University, 1962; M.A., Maryland, 1966; Ph.D., Ohio State, 1970; M.P.H., California at Berkeley, 1971.

Donald C. DeConti, *Adjunct Associate Professor,* B.S., Yale College, 1955; M.D., Yale University, 1959.

Salvatore R. DiNardi, *Associate Professor,* B.A., Hofstra, 1965; Ph.D., Massachusetts, 1971.

Robert W. Gage, *Professor,* B.S., Massachusetts, 1939; M.Sc., Harvard, 1977; M.D., 1942.

Seth B. Goldsmith, *Associate Professor,* B.S., New York University, 1961; M.S., Columbia, 1963; Sc.D., Johns Hopkins, 1970.

Stuart C. Hartz, *Associate Professor,* M.B.A., City College of New York, 1964; M.S., Columbia University, 1965; Sc.D., Harvard School of Public Health, 1974.

Charles G. Hollingsworth, *Assistant Professor,* B.S., University of Pittsburgh, 1969; M.S., 1970; Dr.P.H., University of Michigan, 1974.

David W. Hosmer, *Assistant Professor,* B.A., Vermont, 1966; M.A., 1968; Ph.D., Washington, 1971.

Nellie Kanno, *Associate Professor,* B.S., West Virginia State, 1962; M.S., Indiana, 1966; Ph.D., Michigan State, 1972.

Stanley Lemeshow, *Assistant Professor,* M.B.A., City University of New York, 1969; M.P.H., North Carolina at Chapel Hill, 1970; Ph.D., California at Los Angeles, 1976.

Warren Litsky, *Commonwealth Professor of Environmental Sciences and Public Health,* B.A., Clark, 1945; M.S., Massachusetts, 1948; Ph.D., Michigan State, 1951.

M. Anne Matthews, *Assistant Professor of Public Health,* A.B., Hollins, 1968; S.M., Harvard, 1973; Sc.D., 1978.

Gary S. Moore, *Assistant Professor,* B.S., Massachusetts, 1966; M.S., 1969; Dr.P.H., North Carolina at Chapel Hill, 1971.

Jesse S. Ortiz, *Associate Professor,* B.Ph., Northwestern, 1961; M.S., Loyola, 1965; M.P.H., Michigan, 1968; Dr.P.H., 1970.

Howard A. Peters, *Associate Professor,* B.A., University of Omaha, 1951; M.P.H., North Carolina at Chapel Hill, 1958; Ph.D., 1965.

Jerome S. Peterson, *Adjunct Professor,* B.S., Syracuse, 1925; M.D., College of Physicians and Surgeons, Columbia, 1931; M.P.H., Harvard School of Public Health, 1939.

Debra L. Roter, *Assistant Professor,* B.A., California at Santa Barbara, 1971; M.S., City University of New York at Hunter College, 1974; M.P.H., Johns Hopkins, 1975; Dr.P.H., 1977.

Paula Stamps, *Assistant Professor,* B.S., Missouri, 1968; M.S., Oklahoma, 1970; Ph.D., 1972.

Bruce C. Stuart, *Associate Professor,* B.A., Whitman, 1965; M.S., Washington State, 1968; Ph.D., 1970.

Robert W. Tuthill, *Associate Professor,* B.A., Massachusetts, 1956; M.A., Pennsylvania, 1961; Ph.D., North Carolina at Chapel Hill, 1970.

Course of Study

Students interested in obtaining graduate preparation in the various areas of public health will be accepted in the Division of Public Health if their previous academic background indicates an aptitude for graduate study. Applicants must satisfy the entrance requirements of the Graduate School. Usually applicants will be best prepared by having completed an undergraduate major in either the physical sciences, biological sciences, public health, or the social and behavioral sciences. For all students a minimum background is essential in both the social and behavioral sciences and the biological sciences. In special circumstances, students will be accepted with other undergraduate study majors.

The course of study is organized to prepare students for a concentration in: Biostatistics, Community Health Education, Environmental Health, Epidemiology, and Health Administration.

The course of study leads to the Master of Science degree. Students will also be prepared for advanced graduate studies. The Division encourages an interdisciplinary academic and research approach and will arrange a cooperative program with other departments when this is in the interest of the student.

Students who have deficiencies in certain specific, essential, undergraduate courses will be required to take such courses without graduate credit.

Each applicant's situation is evaluated and handled on an individual basis.

Examples of typical programs of study in each of the areas of concentration are available.

Interested persons may secure this information by writing to the Division.

Research

All graduate students in the Division of Public Health must carry out some form of investigation or research as a requirement for the Master of Science degree. This will be in the form of a thesis conducted under the direction of a departmental faculty member who is also a member of the Graduate Faculty. Before receiving the Master of Science degree, all students must pass an oral comprehensive examination. This examination is given by at least three members of the Graduate Faculty. The comprehensive examination covers the research project as well as the subject matter the student will have covered leading up to the Master of Science degree.

COURSES REQUIRED OF ALL STUDENTS FOR MASTER OF SCIENCE DEGREE

The following Public Health courses, with some minor adjustments, are required of all Public Health majors: (Credits, 3 each unless specified) 620 *Principles of Public Health Practice,;* 660 *Principles of Environmental Health;* 630 *Principles of Epidemiology;* 540 *Public Health Statistics;* 640 *Evaluation of Public Health Research;* 694-594 and 695 (796) *Seminar,* 1 credit each semester; 699 *Master's Thesis,* 6-10 credits.

Courses to fulfill requirements for concentration in the area of public health elected by the student (biostatistics, health administration,

community health education, environmental health or epidemiology) are selected in cooperation with the faculty adviser. The total program and the topic for investigation or research must have the approval of the Division's Graduate Coordination Committee. Two academic years is the normal period required for satisfying requirements for the Master of Science degree in the Division of Public Health.

MASTER OF ARTS IN TEACHING (MAT) PROGRAM IN PUBLIC HEALTH

The Master of Arts in Teaching degree (MAT) is offered in cooperation with the Graduate School to candidates who are interested in health education teaching at the elementary and secondary school level and the community college level.

The program for the secondary level requires 40 graduate credits, distributed as follows: Education courses, nine credits, Education practicum, nine credits. At least 12 credits in Public Health, to include at least two courses and two seminars. The remaining credits (at least 10) will be taken in the Division of Public Health or must be courses approved by the Division of Public Health.

For the community-college level option, 45 graduate credits are required, distributed as follows: 24 credits in the field of Public Health, 12 credits in professional Education courses, and nine credits for teaching practicum.

Prerequisites for admission
For all candidates, a bachelor's degree in an appropriate discipline or equivalency.

For Medical Technology candidates, the MT (ASCP) certification and at least one year's experience on a professional level, or its equivalency. Applicants interested in the MAT in public health should be sure to indicate this on their application.

All courses carry 3 credits unless otherwise specified.

505 Current Issues in Health Education
Issues such as human sexuality, drug use and abuse, family planning, poverty and health and socialized health care.
Mr. Darity

511 Human Sexuality and Sex Education
Human sexuality in relation to modern life. Emphasis on sexuality as it may appear in the infant, the child, the adolescent, and the young married adult; examination and clarification of one of the crucial dynamics of the present era. Prerequisite, permission of instructor.
Mr. Darity

512 Public Health and Family Planning
Public health problems associated with family health and population limitation. Historical factors, limitation methods, and barriers and facilitators related to family health size. Prerequisite, permission of instructor. Mr. Darity

540 Public Health Statistics
Principles of statistics applied to the evaluation of public health practices. Three class hours, one 1-hour laboratory period. Prerequisite, permission of instructor. Ms. Matthews, Mr. Hosmer, Mr. Lemeshow

550 Basic Public Health Laboratory Procedures
Standard methods used in present day applied bacteriology; soils, dairy products, water and shellfish, air. Two class hours, two 2-hour laboratory periods. Prerequisite, Microbiol 140 or permission of instructor. Mr. Litsky

551 Advanced Public Health Laboratory Procedures
Field collection of samples, stream pollution study, food poisoning and infection, standard methods of food analysis. One 4-hour and one 2-hour laboratory period. Prerequisite, PH 550 or permission of instructor. Mr. Ortiz

552 Clinical Bacteriology
Procedures in clinical laboratory work. One class hour, two 2-hour laboratory periods. Prerequisites, Microbiol 250 or permission of instructor. Mr. Ortiz

553 Parasitic Disease
The life cycles, pathology, symptomatology, immunity, epidemiology and identification of parasites of public health and medical importance. Prerequisites, PH 550 and/or Zoo 283, or permission of instructor. Mr. Ortiz

554 Microscopy of Water
Microscopic forms of life, exclusive of bacteria. Counting and control of plankton in potable waters. Elements of limnology. 3 class hours, one 2-hour laboratory period. Mr. Moore

555 Concepts of Human Parasitism
Selected topics on communicable, chronic and environmentally caused disease will be discussed for their historical, current and future value. E
topic discussed in relation to the h
defense mechanisms, how it has af
ted the host (infectivity), what is
present status of the host-parasite r
tionship and what could happen if
sent barriers are broken. Mr. O

560 The Environment and Public Hea
The relationship of public health to
ious environmental problems. The te
nological, social, economic and polit
resources needed to effect an impro
ment. Not open to Public Health gr
uate students. Mr. DiN

561 Institutional Hygiene and Sanitation
Application of bacteriology to the
vention of food poisoning events. Ev
ation of sanitary measures designe
prevent disease transmission via f
and institutional environments. Ro
government agencies. Mr. M

562 Principles of Air Pollution
Air pollution as a major public he
problem. Topics include: air po
tants, and their sources, health
economic effects, meteorology, s
pling and analysis, air quality cri
and standards, control technology, c
trol regulations and programs. Limi
to public health and engineering
jors. Other science majors by permis
of instructor. Mr. P

563 Principles of Radiation Protectio
Effect and control of radiation in
mammalian system. Includes sour
measurements, radiosensitivity, ra
tion chemistry, cellular effects
acute and delayed effects in occupati
al, medical, and environmental ex
sures. Prerequisite, permission of
structor.

564 Principles of Occupational Health
The relation of the occupational en
onment to the health, efficiency,
well-being of workers. Emphasis on
dustrial hygiene, including toxic ma
ials, physical stresses and control m
ods. Limited to public health and
gineering majors. Other science ma
by permission of instructor. Mr. P

601 Principles of Community Health Education
Exploration of methods and approac
to community health, community
mensions, and community potent
Types and use of various methods l

ing to community action. 3 class hours, one 2-hour laboratory period. Prerequisite, permission of instructor.
Credit, 4. Mr. Chen, Mr. Cernada, Ms. Roter

02 Community Development in Health Education
Latest approaches in community development and community organization procedures. Exploratory readings, field assignments; emphasis on leadership development and coordinated community action. Prerequisite, permission of instructor. Mr. Cernada

04 School Health
The principal concepts, methods and dynamics of the organization of a school health program at the elementary and secondary levels. Stress on the planning and teaching in problem areas through the efforts of all leadership persons in the school and in the community. Prerequisite, permission of instructor.
Mr. Chen

20 Principles of Public Health Practice
Introduction to the philosophy, nature, and scope of modern health services. Discussion of major health issues and programs. Organization of health services by local, national and international health agencies. Prerequisites, Soc 101 and Zool 101, or permission of instructor. Mr. Gage
Credit, 4.

21 Medical Care Organization
Organizational patterns for delivery of medical care. Cost, methods of payment, health personnel and facilities, planning, evaluation of medical care-health, amendments to the Social Security Act, national and international trends. Prerequisite, permission of instructor. Mr. Berliner

22 Program Evaluation in Health Administration
The organization of health programs to meet the needs of the people. Emerging health problems and approaches to solving these problems. Emphasis on comprehensive planning and evaluation procedures. Prerequisites, PH 620 or permission of instructor. Ms. Stamps
Credit, 4.

23 Government Health Programs
Historical and theoretical rationale for governmental involvement in the health sector. Descriptive and analytical study of current and proposed health programs. Emphasis on current government health programs and relevance to the United States, and national health insurance. Mr. Stuart

630 Principles of Epidemiology
An epidemiological perspective of health. Approaches for describing patterns of disease in groups of people and for elucidating processes creating differing health levels in human groups.
Mr. Tuthill

632 Chronic Disease Epidemiology
An analysis of the impact of selected chronic diseases on modern society. Current theories of cause and prevention related to present and future needs in health care and research efforts. Prerequisite, PH 630 or permission of instructor. Mr. Hollingsworth

633 Communicable Disease Epidemiology
A review of selected infectious diseases; emphasis on current theories of distribution, transmission and control.
Mr. Hollingsworth

634 Health Program Evaluation
Approaches to evaluating categorical health programs. Class undertakes a systematic analysis of previous evaluation efforts in health areas of individual interest. Prerequisite, permission of instructor. Mr. Tuthill

635 Social Epidemiology
Life styles of populations and the risks to which individuals in these populations are vulnerable. Models linking social stress, physiological responses, psychosocial mediators, and social support systems which promote or reduce susceptibility to disease. Prerequisite, permission of instructor. Mr. Tuthill

640 Evaluation of Public Health Research
Principles of statistics applied to the evaluation of public health research.
Mr. Lemeshow

660 Principles of Environmental Health
The application of scientific knowledge to the control of man's environment as applied to human health. The physical, chemical and biological aspects of the air, water, land, food, housing, and occupation environments. Public health or science majors with junior standing, or permission of instructor.
Mr. DiNardi, Mr. Peters

661 Environmental Health Practices
The concepts of control methods used by the environmental health and engineering practitioner. Topics include: water, wastewater, solid wastes, food sanitation, vector control, housing, and accident control measures. Limited to environmental health and engineering majors. Other science majors by permission of instructor. Mr. Peters

694,695 Seminar
Lectures and reports on current literature and special topics.
Credit, 1 each semester; maximum credit, 4.

696 Special Problems in Public Health
Special investigational or research problems for advanced students. The scope of the work can be varied to meet specified conditions.
Credit, 3-6.

698 Supervised Field Training (Internship)
For majors. Opportunity for supervised field observation and professional experience in selected public health agencies. Assignment in either associate function or internship. Departmental staff; consultants in public health agencies.
Credit, 3-12.

699 Master's Thesis
Independent research leading to a thesis on a public health subject. Results should be suitable for publication.
Credit, 3-10

702 Advanced Methods in Health Education
Health education efforts that have influenced community health. Individual study, programming and research methods. Prerequisite, permission of instructor. Mr. Darity

708 Research Methods in Community Health Education
Logic and techniques of research methods as applied to health education. Formulations, research problems, developing research designs, collecting, analyzing and reporting data as they relate to the solution of community health problems. Prerequisite, permission of instructor. Mr. Chen

721 Seminar in Health Planning
Concepts and methods of community, regional and national health planning. Consideration of the social, political and economical aspects of the planning agencies, their structure, power and role.
Mr. Berliner

730 Epidemiological Investigation
Vital statistics and their use in epidemiological investigation. Students formulate and carry out an epidemiological analysis using secondary data. Prerequisite, PH 630. Mr. Tuthill

737 Advanced Epidemiology
The application of epidemiological techniques to the study of a specific health problem. Prerequisite, PH 730.
Mr. Hartz

742 Advanced Methods in Biometric Research
Applications of advanced statistical procedures such as Hotellings' T^2 statistic, nonlinear regression, and stepwise linear regression to problems in biology, medicine and public health. Prerequisite, PH 540, Math 616, and FORTRAN programming ability, or permission of instructor. Mr. Hosmer

744 Computer Analysis of Health Sciences Data
The application of packaged statistical programs in analyses of data from the health sciences. Emphasis on use and interpretation of the computer output.
Mr. Hosmer

748 Survival Theory in Public Health and Science
Application of statistical distribution theory to assess and predict survival in human beings and animals who are, for example, exposed to a radiation hazard, as well as electrical and mechanical equipment. Prerequisites, PH 540 and Math 616 or permission of instructor.
Mr. Hosmer

760 Environmental Health Planning
Principles of environmental health as translated into community programs planned to meet desirable objectives. Different surveys and rating systems as measuring devices for the effectiveness of programs. Prerequisite, PH 660 or equivalent. Mr. Peters

773 Air Sampling and Analysis
Applications of fluid mechanics and gas laws to measurement and collection of atmospheric pollutants which are injurious to health. Pollutants are analyzed by various chemical techniques. Prerequisite, PH 562 or permission of instructor.
Mr. DiNardi

780 Public Health Law
Constitutional and social bases for public health law. The development of statutes and regulations and their effects on social problems, including review of court decisions and the preparation of administrative regulations.
Mr. Hartzler

Partial List of Courses in Other Schools and Departments for which Major Credit Will be Given in the Division of Public Health

Biochem. 523,524 General Biochemistry

Bus. Ad. 770 Operations Management

Bus. Ad. 780 Organizational Behavior

Bus. Ad. 789 Business Policy

Chem. Eng. 571 Air Pollution Control Processes

Civ. Eng. 471 Introduction to Environmental Pollution Control

Civ. Eng. 572 Environmental Engineering Analysis I

Civ. Eng. 574 Radiological Health Engineering

Civ. Eng. 577 Surface Water Quality Control

Educ 506 Evaluation Models

Educ 508 Research Methods in Education

Educ. 535 Education Media, Technology, and Systems

Educ. 550 Conceptions of Liberal Education

Educ. 551 Foundations of Education

Educ. 554 Educational Anthropology

Educ. 555 Introduction to Statistics and Computer Analysis

Educ. 807 Human Appraisals and Evaluation

Educ. 844 History of Higher Education in America

Educ. 881 Comparative Education

Educ. 884 Educational Sociology

Microbiol. 530 Pathogenic Bacteriology

Microbiol. 540 Immunology

Microbiol. 525 Virology

Microbiol. 710 Advanced Immunology

Psych. 660 Advanced Social Psychology

Sociol. 711 Elementary Statistics

Sociol. 460 Urban Sociology

Sociol. 481 Sociology of Mental Disorders

Sociol. 720 Sociology of Education

Sociol. 740 Socio Gerontology

Sociol. 742 Sociology of Medicine

Sociol. 722 Seminar in the Family

Sociol. 763 Human Ecology: Community Structure and Interrelations

Stat. 431,432 Introduction to Fundamentals of Statistical Inference (I) (II)

Stat. 451 Elementary Least Squares, Regression and Analysis of Variance

Stat. 461 Design of Experiments (Methods)

Stat. 471 Survey Sampling

Stat. 481 Multivariate Analysis (Methods)

Zool. 430 Systems of the Human Body

lavic Languages and iteratures

raduate Faculty

obert A. Rothstein, *Professor and Acting ead of the Department of Slavic nguages and Literatures,* B.S., assachusetts Institute of Technology, 1960; .A., Harvard, 1961; Ph.D., 1967.

aurice I. Levin, *Professor and Graduate ogram Director,* B.A, Boston, 1953; .A., Harvard, 1958; Ph.D., 1964.

aszlo Dienes, *Assistant Professor,* iploma, Eötvos Lorand University of Arts id Sciences, Budapest, Hungary, 1968; .A., Harvard, 1972; Ph.D., 1977.

Joseph Lake, *Associate Professor,* B.A., eorgetown, 1964; M.A., Yale, 1968; h.D., 1969.

aszlo M. Tikos, *Professor,* M.A., Universi- of Debrecen, Hungary, 1954; Ph.D., niversity of Tübingen, Germany, 1962.

eorge Ivask, *Professor Emeritus,* Ph.D., arvard, 1955.

MASTER OF ARTS

rerequisites for admission

bachelor's degree with a major in Russian nguage and literature or area studies, plus n indication of ability to do successful gradu- work. Deficiencies in literary background nd/or insufficient command of spoken or ritten Russian must be remedied before the andidate can be admitted to certain courses equired for the degree.

anguage

or this degree the student must have, or ust acquire, a reading knowledge of at least ne major language other than Russian or nglish, preferably French or German. In ad- ition, the student is required to demonstrate roficiency in speaking, understanding, eading and writing contemporary standard ussian.

rogram of study

total of 30 credits, at least 24 of which ust be earned in this Department. The stu- lent is required to pass a comprehensive ex- mination in order to demonstrate 1) profi- iency in the language itself; 2) familiarity ith the whole body of Russian literature; 3) horough knowledge of the structure and istory of the Russian language; 4) nowledge of Russian and Soviet history and ulture.

ll courses carry 3 credits unless otherwise pecified.

Slavic

559 The Slavic Peoples, Their Languages and Civilizations
A survey of the historical, social, intellectual, and cultural evolution of the Slavic peoples from the earliest times to the present. Emphasis on the non-Russian Slavs. Conducted in English.
Mr. Rothstein

601 Old Church Slavic
Introduction to the phonology, morphology, and syntax of Old Church Slavic; selected readings and textual analysis. Required of all first-year graduate students. Mr. Lake

Russian

551 Pushkin
The most important works of Pushkin, prose and poetry. Facility in speaking and writing Russian required. Conducted on a seminar basis with each student actively participating. Mr. Dienes

552 Gogol
The most important works of Gogol: *The Inspector-General, Dead Souls, The Overcoat,* and selected passages from his *Correspondence with Friends,* and other works. Facility in speaking and writing Russian required. Conducted on a seminar basis with each student actively participating. Mr. Dienes

553 Dostoevsky
Historical and literary background. Close text analysis. Student reports. Readings of selected works in the original required of Russian majors.
Mr. Tikos

554 Tolstoy
Historical and literary background. Close text analysis. Student reports. Readings of selected works in the original required of Russian majors.
Mr. Tikos

556 Russian Drama
Drama in the originals from the beginning to the establishment of a national theatre culminating in plays of Ostrovsky, Chekhov, Gorky. Prerequisite, proficiency in Russian. Mr. Tikos

557 Soviet Literature
The beginnings and development of Soviet prose, drama, and criticism from Gorky to Sholokhov and Pasternak.
Mr. Tikos

558 Russian Poetry
Russian poetry in the originals, from the early 19th century to the present. Emphasis on the major poetic trends. Prerequisite, proficiency in Russian.
Mr. Dienes

560 Russian Phonetics
Detailed analysis of the Russian sound system. Articulation and intonation, largely in comparison with the English sound system. Recommended for those preparing to teach Russian. Prerequisite, proficiency in Russian.
Mr. Levin

561 Structure of Russian
Descriptive analysis of the morphology of contemporary standard Russian; additional emphasis on selected problems of derivation. Prerequisite, proficiency in Russian. Mr. Levin

562 The Teaching of Russian
A systematic analysis of the major linguistic problems facing the teacher of Russian and the methods used in solving them. Prerequisite, permission of instructor. Mr. Levin

563 Contrastive Structures of Russian and English
Contrastive analysis of Russian and English with emphasis on those elements of Russian structure that differ significantly from English. Prerequisite, proficiency in Russian. Mr. Rothstein

602 The History of the Russian Language
Historical development of the Russian language, its relation to other languages, changes in sound, form, and vocabulary from the earliest period to the present. Prerequisite, Slavic 601.
Mr. Lake

611 Readings in Russian Literature of the Early Period
Close reading and analysis of the major works of Russian literature before Pushkin. Emphasis on the place of each in Russian literature. Conducted in Russian with readings in the original.
Mr. Dienes

612 Readings in Russian Literature Since Pushkin
Close reading and analysis of the major works of Russian literature since Pushkin. Emphasis on the place of each in Russian literature. Conducted in Russian with readings in the original.
Mr. Dienes

Graduate Faculty

John P. Hewitt, *Professor and Chairman of the Department of Sociology,* B.A., New York at Buffalo, 1963; M.A., Princeton, 1965; Ph.D., 1966.

Michael Lewis, *Professor and Graduate Program Director,* B.A., Brooklyn College, 1959; M.A., Princeton, 1962; Ph.D., 1967.

Andy B. Anderson, *Associate Professor,* B.A., Southern Methodist, 1963; Ph.D., Tulane, 1967.

Albert Chevan, *Associate Professor,* B.S., Cornell, 1953; M.S., Connecticut, 1957; Ph.D., Pennsylvania, 1968.

Roland J. Chilton, *Professor,* B.A., Monmouth, 1951; M.A., Wisconsin, 1958; Ph.D., Indiana, 1962.

N. Jay Demerath, III, *Professor,* B.A., Harvard, 1958; M.A., California at Berkeley, 1961; Ph.D., 1964.

Edwin D. Driver, *Professor,* B.A., Temple, 1945; M.A., Pennsylvania, 1947; Ph.D., 1956.

Robert R. Faulkner, *Associate Professor,* B.A., California at Los Angeles, 1963; M.A., 1965; Ph.D., 1968.

Hilda H. Golden, *Associate Professor,* B.A., Skidmore, 1942; M.A., Duke, 1944; Ph.D., 1950.

Milton M. Gordon, *Professor,* B.A., Bowdoin, 1939; M.A., Columbia, 1940; Ph.D., 1950.

Anthony R. Harris, *Associate Professor,* B.A., Queens College, 1964; M.A., Cambridge, 1966; Ph.D., Princeton, 1972.

Paul Hollander, *Professor,* B.A., London, 1959; M.A., Illinois, 1960; M.A., Princeton, 1962; Ph.D., 1963.

Christopher J. Hurn, *Associate Professor,* B.S., London, 1960; M.A., Northwestern, 1965; Ph.D., 1968.

Lewis M. Killian, *Professor,* B.A., Georgia, 1940; M.A., 1941; Ph.D., Chicago, 1949.

John F. Manfredi, *Associate Professor,* B.A., Pennsylvania, 1942; M.A., Harvard, 1948; Ph.D., 1951.

Surinder K. Mehta, *Associate Professor,* B.A., Oregon, 1952; M.A., 1955; Ph.D., Chicago, 1959.

Peter Park, *Professor,* B.A., Columbia, 1953; M.A., Yale, 1955; Ph.D., 1958.

Eugene B. Piedmont, *Professor and Acting Dean of the Graduate School,* B.S., State University of New York, 1956; M.A., Rochester, 1959; Ph.D., Buffalo, 1962.

Gerald M. Platt, *Professor,* B.A., Brooklyn College, 1955; M.A., 1957; Ph.D., California at Los Angeles, 1964.

W. Clark Roof, *Associate Professor,* B.A., Wofford, 1961; M.A., North Carolina, 1969; Ph.D., 1971.

Alice S. Rossi, *Professor,* B.A., Brooklyn College, 1947; Ph.D., Columbia, 1957.

Peter H. Rossi, *Professor,* B.S., C.C.N.Y., 1943; Ph.D., Columbia, 1951.

Jon E. Simpson, *Associate Professor,* B.A., Ohio Wesleyan, 1954; M.A., Ohio State, 1958; Ph.D., 1961.

Randall G. Stokes, *Associate Professor,* B.A., California State at San Diego, 1966; M.A., Duke, 1967; Ph.D., 1971.

Gordon F. Sutton, *Associate Professor,* B.A., Wayne State, 1953; M.A., 1955; Ph.D., Michigan, 1959.

Curt Tausky, *Professor,* B.A., Portland State, 1959; Ph.D., Oregon, 1963.

Richard C. Tessler, *Assistant Professor,* B.A., Wisconsin, 1968; M.S., 1970; Ph.D., 1972.

Thomas O. Wilkinson, *Professor and Acting Dean of the Faculty of Social and Behavioral Sciences,* B.A., North Carolina, 1945; M.A., Duke, 1950; Ph.D., Columbia, 1957.

James D. Wright, *Associate Professor,* B.A., Purdue, 1969; M.S., Wisconsin, 1970; Ph.D., 1973.

Sonia R. Wright, *Assistant Professor,* B.S., Purdue, 1965; M.S., 1967; Ph.D., 1973.

David W. Yaukey, *Professor,* B.A., Oberlin, 1949; M.A., Washington State, 1950; Ph.D., Washington, 1956.

The graduate program in sociology is divided into two tracks. One is for Master of Arts candidates; the other is for students who have been accepted into the Doctor of Philosophy degree program. These two tracks, however, are not completely separate programs; no courses are designed specifically for either track. Although students entering with a bachelor's degree are usually required to obtain a Master of Arts degree en route to the Ph.D., the M.A. student may petition the Graduate Studies Committee fo a waiver of the thesis requirement an thereby transfer to the doctoral program.

Students working toward either the Maste of Arts or the Doctor of Philosophy degree i sociology must fulfill the general re quirements of the Graduate School. Th Doctor of Philosophy degree utilizes as i guiding principle the effective preparatio of candidates to excel at two tasks: (1) th Comprehensive Examination and (2) th dissertation. Since no relationship is assume to obtain between specific courses taken an the high expectations of the Comprehensiv Examination, course requirements ar deliberately flexible, but require the follow ing: Advanced Statistics, Advanced Metho (to be selected from five alternative metho seminars), Advanced Theory (to be selecte from six alternative theory seminars). It expected that examinations will be taken i the second semester of the third year, an certainly not later than the first semester o the fourth year. Students entering the pro gram with a M.A. from another institutio should take the examinations in the secon year of residence. Students may select a their field of concentration any acceptec broadly-defined cognate areas in sociology In all instances, the Graduate Studies Com mittee must approve the fields proposed b the student. The overall examination con sists of three parts: a take-home written i one field, a colloquium presentation in a s cond field, and an oral examination coverin both fields.

The Comprehensive Examination may no be taken until all Ph.D. course work ha been completed. Upon successfully passin the Comprehensive Examination, the stu dent is admitted to candidacy for the Ph.D degree and may proceed with the dissertа tion. A public oral final examination, no necessarily limited to the dissertation, is als required at its completion.

There is no general foreign-language re quirement for degree qualification i sociology. Doctoral students may be ex pected to demonstrate satisfactory levels o competence in one or more languages othe than English in those cases where such a re quirement is deemed desirable by the faculty (*e.g.*, a specific dissertation project).

Credit and course requirements for th Master's degree are constrained by Graduat School regulations. A minimum of 30 hour of credit is required. No more than 3 credit may be earned by means of a thesis, thus re quiring a minimum of *nine* courses. Durin

e first year of graduate study, the student all be required to take two theory courses, e statistics course, and one methods urse. After the second semester, the stunt will have two major tasks for completon of the M.A. degree: a Master's thesis orth 3 hours of credit, and course electives fill out the 30-hour credit requirement.

pplicants for admission to graduate study sociology are expected to be familiar with ndamental sociological concepts and eratures. Candidates may be asked to move deficiencies, without receiving aduate credit, prior to or after admission.

pplications for admission will *not* be aluated until *all* credentials have been ceived. These include Graduate Record xamination scores (both Aptitude and Adnced), two letters of recommendation, and anscripts of all previous academic study. udents requesting any form of financial d are responsible for ensuring that all apication materials are on file in the raduate School by February 1 (for fall enance) and October 1 (for spring entrance). he respective deadlines for filing applicaons for admission are March 1 and October but early submission is strongly encourged.

pplicants from countries whose native ngue is not English must, in addition to bmitting all the above credentials, take the est of English as a Foreign Language TOEFL). The Graduate School also requires all foreign students to take an English xamination at the beginning of their initial mester, after admission. Remedial work ay be prescribed on the basis of this exmination.

brochure, "Graduate Studies Program," hich details the basic emphasis and requirements of the Department's programs, is vailable on request to the Graduate Proram Director.

ll courses carry 3 credits unless otherwise ecified.

44 Juvenile Delinquency
Theories of causation and treatment of delinquency. Prerequisite, Soc 278 or permission of instructor.

61 Fertility and Society
A review of past and present trends in fertility on a worldwide basis, an analysis of the social determinants and consequences of these trends, and an assessment of likely future trends. Prerequisites, Soc 261 and permission of instructor.

562 Population Theories and Policies
The major theories concerning population growth, distribution, internal and international migration, and population quality. Theorists include the pre-Malthusians, Malthus, Marx, Keynes, Stouffer, Petersen, Myrdal, Clark, Coale, Keyfitz, Spengler, Davis, and others.

564 Urbanization and the City
A comparative analysis of world urbanization, its causes, and consequences. Regional variations in the nature of urbanization and trends in major countries related to major aspects of the social structure of cities. Prerequisite, Soc. 101.

699 Master's Thesis

701 The Development of Sociological Theory
Selected European and American contributors and their systems of theory, in biographical, historical, and sociological perspective. Prerequisite, permission of instructor.

702 Contemporary Sociological Theory
The literature from 1900 to the present. Prerequisite, Soc 282 or permission of instructor.

703 History of Sociological Theory
A survey of literature from classical times to the Utilitarians. Prerequisite, Soc 282 or permission of instructor.

704 Advanced Sociological Theory
A methodological analysis of contemporary sociological theory. Emphasis on theory construction, formalization and evaluation. Prerequisite, Soc 282 or permission of instructor.

705 Social Theory and Social Problems
The oft-presumed two-way relationship between social theory on the one hand, and those issues which trouble men and women in particular historical settings on the other.

706 Problems of Theoretical Analysis in Contemporary Sociology
Alternative theoretical orientations, including neopositivism, functionalism, systems theory, phenomenology; problems of intellectual style, sociology and other disciplines; human perspectives; sociology of knowledge and of sociology. Prerequisite, permission of instructor.

707 Sociology of Knowledge
The intellectual and social background of Karl Mannheim's and Max Scheler's *Sociology of Knowledge*. Discussion of selected writings. Comparisons with Durkheim, Sorokin, Mead.

710 Research Methods
Logical analysis of sociological inquiry; survey of major research techniques and examination of principal methodological problems in sociology.

711 Elementary Statistics
Basic statistical principles and techniques with special reference to application in sociology.

714 Research Methods
Research techniques in sociology, including: formulating research objectives; collecting, processing, and analyzing data for a project organized around the problems of measurement in sociology. Prerequisites, Soc 547 and 795.

715 Survey Design and Analysis
Design and analysis of descriptive and explanatory sample surveys. Special attention to the problems of longitudinal studies designed to evaluate the effects of a complex experience. Prerequisite, Soc 795.

716 Techniques of Data Collection in Social Research
The validity and reliability for various purposes of a number of observational techniques, including: the interview, the paper and pencil questionnaire, content analysis, and participant observation. Prerequisite, Soc 795.

717 Computer Methods in Sociology
A survey of computer-oriented analytical tools and data-processing systems available to the sociologist. The place of the computer in research and the development of mathematical sociology. Students program and test a statistical or mathematical model. Prerequisite, knowledge of some computer language.

720 Sociology of Education
Educational characteristics of an industrial population; comparative social structures and their school systems; educational selection and social stratification; educational development as effect and cause of social change; the culture of schools and universities. Prerequisites, one graduate course in sociological theory and one course in research methods.

721 The Sociology of Religion
The relations of religious ideology and ecclesiastical organization to the total social institutional system. Attention to the religions of larger civilizations, especially Islam, Buddhism, medieval Christianity, Gentile paganism, Protestantism, and Judaism.

722 Seminar in the Family
Cross-cultural examination of family systems; their development, factors influencing changes, and direction of changes. Comparison of theoretical frames of relevance for theory construction and research. Prerequisite, Soc. 257 or permission of instructor.

724 Social Stratification
The major contemporary writers and their contribution to this area. Research techniques in the analysis of social class and social mobility. Prerequisite, Soc 259 or permission of instructor.

725 Political Sociology
Analysis of the major topics and problems of political sociology in a comparative context. Attention to contemporary social movements, political pluralism and extremism, the social roots of totalitarian and democratic societies.

726 Complex Organizations
Major theories of organization. Emphasis on recent findings on the determinants of individual behavior and organizational effectiveness.

727 Social Change
Analysis of change as a process, especially the factors making for acceptance or rejection of innovations. Consequences of contacts between societies, with emphasis on underdeveloped areas. Prerequisite, Soc 272 or permission of instructor.

728 Social Movements
Analysis of the genesis, career, values, norms, structure, and endproducts of social movements, including studies of selected movements.

729 Contemporary Belief Systems
Comparative belief systems in modern industrial societies, including both theoretical and methodological considerations. Problems of defining "religion" in contemporary society, theoretical approaches for analyzing modern belief systems, and problems of method and analysis.

730 Industrial Sociology
The different ways selected industrial or developing societies are organized to elicit work efforts, *e.g.*, Russia China, Israel, Japan, U.S., Cuba.

740 Social Gerontology
Implications of aging for society and the individual. Position of the aged in nonindustrial and industrialized societies. Changing roles of older people in the American family and the community. Prerequisites, Soc 257 or permission of instructor.

741 Criminology
Criminological theories, past and present, with emphasis on present research trends as they relate to theoretical formulations. Prerequisite, permission of instructor.

742 Sociology of Medicine
A survey of theory and research concerned with medical care as a social institution. The relation of social factors to illness, and social process involved in medical education. Prerequisite, Soc 286 or permission of instructor.

745 Seminar on Public Policy and Social Sciences
The mobilization of the social sciences for the solution of domestic social problems. More concerned with the strategy of applied social science in the context of social policy than with substantive issues.

746 Black Man in America
A socio-historical analysis of the interaction of the Black man and the American environment, from slavery to his migration to urban areas and subsequent isolation in the black ghetto.

761 Demography
An analysis of the demographic transition from peasant-agriculturalism to urban industrialism. Emphasis on the consequences of this transition for patterns of settlement and for fertility, mortality, and migration. Prerequisite, Soc 561 or permission of instructor.

763 Human Ecology: Community Structure and Interrelations
Theory and research of community functions and systems of communities with special reference to ecological organization and change.

764 Population of India and and Pakistan
Trends in population growth and its distribution among various social strata. The relative influence of fertility, mo tality, migration, social organizatio and cultural values on growth patter Prerequisites, Soc 561 and 795.

780 Collective Behavior
The process of interaction through whi new social norms and forms of soci organization emerge in the crowd, t public, and the social movemen Emphasis on principles of collecti behavior in the crowd.

786 Symbolic Interaction Seminar
The symbolic interactionist approach social psychology and the social stru ture, including historical as well as co temporary contributions. Emphasis the relation of symbolic interaction other approaches in sociology.

787 Sociology of Small Groups
Small human groups viewed as relative permanent relational structures whi emerge out of the process of social i teraction. Theoretical discussion of co cepts and logic of the process of eme gence. Prerequisites, one prior gradua course in social psychology or permissi of instructor.

899 Doctoral Dissertation
Credit, 18.

Related Courses

Psych 660 Advanced Social Psychology

Psych 661 Attitudes

Psych 664 Group Dynamics

Public Health 635 Social Epidemiology

raduate Faculty

artha P. Francescato, *Professor and hairman of the Department of Spanish,* A., Instituto Superior del Profesorado, 56; M.A., Illinois, 1959; Ph.D., 1970.

umner M. Greenfield, *Professor and raduate Program Director,* B.A., Boston ollege, 1944; M.A., Boston University, 47; M.A., Harvard, 1951; Ph.D., 1957.

ntonio Andrade, Jr., *Assistant Professor,* A., San Jose State, 1959; M.A., 1967; .D., Indiana, 1975.

obert L. Bancroft, *Professor,* B.A., ashington, 1935; M.A., 1947; Ph.D., Colnbia, 1957.

edro Barreda, *Associate Professor,* M.A., ate University of New York at Buffalo, 66; Ph.D., 1969.

.L. Boudreau, *Professor,* B.A., Illinois, 48; M.A., 1950; Ph.D., Wisconsin, 1966.

lanche De Puy, *Professor,* B.A., ellesley, 1942; M.Litt., Pittsburgh, 1951; .D., Stanford, 1961.

rank C. Fagundes, *Assistant Professor,* A., California at Los Angeles, 1972; .A., 1973; Ph.D., 1976.

rancisco Fernández-Turienzo, *Associate rofessor,* B.A., Universidad Pont. de lamanca, 1956; M.A., University of Basel witzerland), 1965; Ph.D., 1965.

sé N. Ornelas, *Assistant Professor,* B.A., ueens, 1969; M.A., 1972; Ph.D., City niversity of New York, 1976.

les Piccus, *Professor,* B.A., Queens, 42; M.A., Princeton, 1949; Ph.D., 1951.

lberto M. Rivas, *Assistant Professor,* B.S., niversity of Buenos Aires, 1966; M.S., ortheastern, 1969; Ph.D., Massachusetts stitute of Technology, 1977.

ving P. Rothberg, *Professor,* B.S., Temle, 1948; M.A., Pennsylvania State, 1951; .D., 1954.

ina M. Scott, *Associate Professor,* B.A., ellesley, 1959; M.A., Stanford, 1961; .D., 1968.

osalie S. Soons, *Associate Professor,* B.A., yn Mawr, 1947; M.A., Connecticut, 65; Ph.D., 1967.

larlan G. Sturm, *Associate Professor,* .A., Minnesota, 1963; M.A., 1965; Ph.D., orth Carolina, 1967.

uan C. Zamora, *Associate Professor,* I.A., New York at Buffalo, 1966; Ph.D., 71.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

Students may specialize in Literature, in Bilingual-Bicultural Studies, or in Hispanic Linguistics. In addition to the general requirements for the degree at the University, the following special requirements must be met:

1. Bibliographical Orientation unit.
2. A reading knowledge of a second foreign language pertinent to the student's program.
3. Spanish 699 may be elected for six credits by students in Literature or Linguistics.
4. Students specializing in Bilingual-Bicultural Studies have a 36-credit program but are relieved of requirement 2, above.
5. Terminal examinations are as follows:
   a. Written comprehensive examinations in Literature and Linguistics
   b. For those electing Spanish 699, oral defense of thesis
   c. Oral defense of Research Project (noncredit) in Bilingual-Bicultural Studies.

REQUIREMENTS FOR THE PH.D. DEGREE

Students may specialize in Literature or in Hispanic Linguistics. In addition to the general requirements for the degree at the University, the following special requirements must be met:

1. Bibliographical Orientation unit.
2. A reading knowledge of two foreign languages at intermediate level, or of one at advanced level, pertinent to the student's progam.
3. Written and oral comprehensive examinations.
4. Spanish 899 *Doctoral Dissertation,* 12 credits.

Details of all programs are available upon request from the Graduate Program Director.

All courses carry 3 credits unless otherwise specified.

509 Advanced Composition
The elements of stylistics.

520 Spanish Literature to 1500.
Spanish literature in the Middle Ages and Renaissance.

521 Spanish Medieval Poetry
Spanish epic, lyric poetry and other verse of the period.

522 Spanish Medieval Prose
Narrative, historical, and didactic prose works of medieval Spain.

531 Prose of the Golden Age
Major prose works in 16th- and 17th-century Spain. Emphasis on the novel, excluding the *Quijote.*

532 Lyric Poetry of the Golden Age
Spanish poetry of the 16th and 17th centuries from Garcilaso to Gongora.

533 Drama of the Golden Age
The Spanish *comedia* during the period of maximum creation, 1556-1681.

534 Cervantes
Intensive study of the *Quijote.*

540 Spanish Literature from 1700 through Romanticism
Spanish literature and thought in the 18th century and the Romantic movement.

541 19th-Century Spanish Novel
Prose fiction in the second half of the 19th century.

545 Modern Spanish Theater
Development of the theater in Spain from the post-romantic period to the present.

546 20th-Century Spanish Prose Fiction
The novel in Spain from the Generation of '98 to the present.

547 Modern Spanish Poetry
Poetry in Spain from Bécquer to the present.

548 The Essay in Modern Spain
The essay from the late 19th century to the present. Emphasis on both style and content.

550 Spanish-American Literature to 1900
A general view, with intensive study of selected major works.

551 The Modernist Movement
Modernismo in Spanish America, including a comparative study of its manifestations in Spain.

552 Major Spanish-American Writers
Intensive study of major figures in Spanish-American literature.

553 Spanish-American Poetry Since Modernism
The principal authors and movements in the 20th century.

554 Modern Spanish-American Drama
The principal playwrights and currents of the 20th-century theatre.

555 Modern Spanish-American Prose Fiction
Spanish-American prose fiction in the late 19th and early 20th centuries.

556 Contemporary Prose Fiction in Spanish America
The recent novel and short story.

557 Hispanic Literature of the Caribbean
A comparative study of the development of the literature of Puerto Rico, Cuba and the Dominican Republic, and of the historical, cultural and sociopolitical factors that have shaped it.

570 General View of Hispanic Linguistics
An introduction to linguistics as applied to the study of the Spanish language. An overview of the areas of study (diachronic, synchronic, dialectal) and of different theoretical points of view.

572 Hispanic Dialectology
A diachronic and synchronic survey of the dialects of Spain, Spanish America and the Hispanic Caribbean. The area emphasized may vary.

573 Contrastive Analysis of Spanish and English
A contrastive analysis of the phonological, morphological and syntactic systems of Spanish and American English.

574 History and Theory of Hispanic Bilingualism
A survey of the history of contact between different linguistic and cultural groups, and of the nature and consequences of the contacts. Emphasis on the Hispanic world and Spanish- and Portuguese-speaking groups in the U.S.

575 The Teaching of Spanish
Analysis of the major problems anticipated in the teaching of Spanish, and their solutions.

576 Teaching of English to Spanish Speakers
The application of linguistic principles to the teaching of English to speakers of Spanish.

579 The Structure of Modern Spanish
Syntax and morphology of contemporary Spanish. Analysis of the oral and written systems from the points of view of modern grammatical theories. Structural differences between Spanish and English; problems of interference for the non-native.

699 Master's Thesis
Credit, 6.

724 Seminars in Early Medieval Literature
Phases of Spanish literature of the 12th and 13th centuries.
Credit, 3-12.

725 Seminars in Later Medieval Literature
Phases of Spanish literature of the 14th and 15th centuries.
Credit, 3-12.

731 Seminars in Golden-Age Fiction
Aspects of the novel in 16th- and 17th-century Spain.
Credit, 3-12.

732 Seminars in Golden-Age Poetry
The poets and poetic currents of the Spanish Golden Age.
Credit, 3-12.

733 Seminars in Golden-Age Drama
The development and apogee of the Spanish *comedia* in the Golden Age.
Credit, 3-12.

740 Seminars in 18th-Century Spanish Literature
Credit, 3-12.

741 Seminars in 19th-Century Spanish Prose
Credit, 3-12.

743 Seminars in 19th-Century Spanish Poetry and Drama
Credit, 3-12.

745 Seminars in 20th-Century Spanish Poetry and Drama
Credit, 3-12.

746 Seminars in 20th-Century Prose
The novel, short story, and essay in modern Spain.
Credit, 3-12.

753 Seminars in Spanish-American Poetry and Drama
Spanish-American poets and dramatists, individually or in movements.
Credit, 3-12.

756 Seminars in Spanish-American Prose
The novel, short story, chronicle or essay in Spanish America.
Credit, 3-12.

771 Seminars in Spanish Language and Linguistics
The development of Spanish and its relationship to other Romance languages. Phases of Hispanic linguistics.
Credit, 3-12.

775 Seminars in Hispanic Language and Literature
Phases of Spanish language and Hispan literature that involve more than o area or period.
Credit, 3-12.

781 Seminars in Intellectual and Esthetic Movements
Intellectual and esthetic currents in th Hispanic world.
Credit, 3-12.

796 Independent Study
Directed study in some phase of li guistics or literature.
Credit, 1-6.

896 Independent Study
Directed study in some phase linguistics or literature.
Credit, 1-6.

899 Doctoral Dissertation
Credit, 12.

raduate Faculty

arold J. VanderZwaag, *Professor and ead of the Department of Sport Studies,* A., Calvin College, 1951; M.A., ichigan, 1952; Ph.D., 1962.

ilius Gundersheim, *Assistant Professor,* S., State University of New York at Cor- nd, 1961; M.S., Ohio University, 1962.

rik K.M. Kjeldsen, *Assistant Professor,* S., Springfield College, 1954; M.S., 62; M.A., Massachusetts, 1972; Ph.D., 76.

uy M. Lewis, *Professor,* B.S., East arolina, 1950; M.Ed., North Carolina, 52; Ph.D., Maryland, 1964.

ernard J. Mullin, *Assistant Professor,* A., Lanchester Polytechnic, 1972; M.S., ansas, 1974; M.B.A., 1976.

etty Spears, *Professor,* B.S., Purdue, 1940; .S., Wellesley, 1944; Ph.D., New York niversity, 1956.

dith S. Toyama, *Assistant Professor,* A., Southern California, 1969; M.A., isconsin, 1971; Ph.D., Waterloo, 1975.

urricular Requirements

he Department of Sport Studies offers two ograms at the master's degree level. These e: Sport Management and Sport Studies, th leading to an M.S. in Physical Educa- n. At the doctoral level there is one pro- am, Sport Studies, leading to a Ph.D. in uman Movement.

I.S. PROGRAM IN SPORT ANAGEMENT

ort Studies Core, 12 hrs.; Business Ad- inistration Courses, 6 hrs.; Topics Course in ort Management, 3 hrs.; Sport Manage- ent Seminar, 3 hrs.; Internship, 12 hrs.

I.S. PROGRAM IN SPORT TUDIES

ort Studies Core, 12 hrs.; Seminar in Sport udies, 3 hrs.; Theory Course in Cognate eld, 3 hrs.; Methods Course in Cognate eld, 3 hrs.; Methods of Theory Course in gnate Field, 3 hrs.; Thesis, 6 hrs.

Ph.D. Program In Sport Studies (79 hours)

Sports Studies Courses (31 hrs), including: Core 12 hrs; Advanced Topics, 6 hrs; Reading Courses, 6 hrs.; Research Seminar, 3 hrs.; Doctoral Seminar, 4 hrs.; Cognate Work—Seven Courses (21 hrs.); Thesis (6 hrs.); Dissertation (18 hrs.).

Master's Degree Requirements in Sport Studies (30 hrs.); 6 Additional Cognate Courses, 18 hrs.; Independent Study, 6 hrs.; Reading Course, 3 hrs.; Doctoral Seminar, 4 hrs.; Dissertation, 18 hrs.

All courses carry 3 credits unless otherwise specified.

Sport Studies Core Courses

***561 World History of Sport**
Factors influencing the rise of sport and the role of sport in society. Ms. Spears

***562 History of Sport in the U.S.**
Sport in America from earliest times to the contemporary period. Emphasis on the social, political, and economic factors which affected the development of sport. Mr. Lewis

563 Social Psychology of Sport
Topics include personality, aggression, attitudes, competition, stress, social facilitation, and some small group research as related to athletes and individuals involved in sport.
Ms. Toyama

564 Philosophy of Sport
A philosophical analysis of key concepts which influence the objectives of various programs in the broad realm of sport.
Mr. VanderZwaag

565 Sociology of Sport
Sport as a social institution, including both the structure and function of sport.
Mr. Loy

*Either one of the sport history courses may be taken to fulfill the core requirements in that area.

Seminars in Sport Studies

791 Seminar in the History of Sport
Training in historical research. Prerequisite, SPORST 561 or 562.
Mr. Lewis, Ms. Spears

792 Seminar in the Sociology of Sport
An analysis of the utility of sociological paradigms, models and theories for the explanation of sport phenomena, including autotelic and agonetic behavior. Prerequisite, SPORST 565, one sociological theory course and one research methods course.

793 Seminar in the Social Psychology of Sport
Two or three topics within the social psychology of sport (see SPORST 563) are selected for detailed study. Topics will be dependent on the composition and interests of the class. Study includes the theoretical, empirical, and practical implications available within the literature. Research design, literature review, and evaluative skills are emphasized within the selected topics. Prerequisite, SPORST 563.
Ms. Toyama

794 Seminar in the Philosophy of Sport
Analysis of selected topics in the philosophy of sport. Independent study and reports with group critique of papers. Prerequisite, SPORST 564.
Mr. VanderZwaag

Other Courses

566 History of School and College Sport
Developments in sport at educational institutions from the age of unorganized play to the present. Prerequisite, SPORST 561 or 562. Mr. Lewis

664 Athletics: A Philosophic Inquiry
A critical analysis of those historical, sociological, and psychological factors which have influenced the concept of athletics and caused issues in programs associated with this concept. Prerequisite, SPORST 564.
Mr. VanderZwaag

769 Internship in Sport Administration
Participation in management of a sport organization. Students assigned as interns with a professional sport organization, a collegiate or high school athletic department, an intramural sport program, a "hall of fame," or some other form of public or private sport organization. Pass/Fail basis only.
Credit, 12.

699 Master's Thesis
Credit, 6.

700 Special Problems
Individual student research, by arrangement.
Credit, 1-6.

Theater

860 Advanced Topics in Sport Studies
Intensive theoretical and methodological examination of a specific research topic. Topics are selected which allow for interdisciplinary treatment. Prerequisite, all core courses in sport studies.

891 Seminar in Human Movement
Topics in human movement not covered in regular course.
Credit, 1 each semester; Maximum Credit, 6.

899 Dissertation
Credit, 18.

Graduate Faculty

David M. Knauf, *Professor and Chairman of the Department of Theater,* B.F.A., Ohio, 1958; M.A., 1960; Ph.D., Iowa, 1962.

Doris E. Abramson, *Professor and Graduate Program Director,* B.A., Massachusetts, 1949; M.A., Smith, 1951; Ph.D., Columbia, 1967.

Vincent C. Brann, *Associate Professor,* B.A., Iowa, 1950; M.A., Columbia, 1953.

Jeffrey A. Fiala, *Associate Professor,* B.S., Wisconsin, 1967; M.F.A., 1970.

June B. Gaeke, *Assistant Professor,* B.S., Wisconsin, 1969; M.F.A., 1971.

Harry E. Mahnken, *Associate Professor,* B.A., Geneva, 1951; M.F.A., Carnegie Institute of Technology, 1955.

Virginia Scott, *Assistant Professor,* B.A., Iowa, 1955; M.F.A., 1962; Ph.D. 1970.

MASTER OF FINE ARTS IN THEATER

The Department of Theater offers a three-year, 60 credit, in-residence program leading to the degree of Master of Fine Arts in Theater with specialized training in dramaturgy, playwriting, performance (directing), and scenography (scenic, lighting and costume design and execution).

The training program is preprofessional and graduates are expected to qualify for careers in permanent, full-scale producing companies or ensembles, whether regional or based in the university or community. The program is not intended for beginners. It presumes a strong humanistic background, functional experience in all the arts of theater, and previous demonstration of high artistic promise in the area of intended specialization. The long-range objective of the training program is stage innovation. It is assumed, however, that theatrical invention presupposes thorough knowledge of the history of dramatic convention, theoretical as well as practical understanding of the resources of performance as an artistic medium, and demonstrable mastery of the techniques and instruments of stage expression. The program is not conducive to premature ingenuity, and prospective students without the stamina, determination, and patience to undergo extensive trial and preparation for performance and production should not apply. Those with restrictive interests (e.g. in improvisation or environmental staging or musical theater alone) w also be thwarted by the breadth of traini required and should seek out other progra better suited to their particular needs.

The Department of Theater is housed in elaborate new center for the performing a with fully equipped laboratories, studi workshops, and stages designed for all sty and types of performance. The Univers Library and other archives in the area hc extensive collections for production search.

Enrollment in the graduate program Theater is restricted in order to insure t highest possible quality of training. At pr sent, the number of openings is limited vacancies created through graduation a attrition. Instruction is organized academic-year units, and applications a normally considered for the fall term only

Applicants should follow the procedures a meet the requirements for admissi established by the Graduate School. In ad tion, a minimum cumulative grade poi average of 3.0 (on a 4.0 scale) should ha been earned on all previous college wor The Graduate Record Examination is r quired. The Miller Analogies Test may al be requested if evidence of potential succ in the Theater program is in question.

All applicants must submit a comple résumé of production experiences and inte view with the Graduate Committee. Tho who intend to concentrate in acting shou be prepared to audition. Applicants w wish to concentrate in dramaturg playwriting, and directing should submit a propriate critical essays. Those interested playwriting should also offer drafts of at lea two original scripts. Dramaturgy applican who are fluent in a second language will given preference. Applicants who intend focus their training in scenic, lighting, costume design should submit a portfoli Manuscripts and portfolios are return upon request.

Completed application forms, transcript letters of recommendation, and examinati scores should be sent directly to t Graduate Admissions Office, Gradua Research Center, University of Massach setts, Amherst MA 01003. All other su portive material should be sent to the Gra uate Program Director, Department Theater, Fine Arts Center, University Massachusetts, Amherst MA 01003.

Instruction in the program is centered in i dividually planned projects carried o

thin the framework of specialized studios
id workshops, supported by directed
adings in the history and theory of stage
actice and by various seminars in play and
oduction research and analysis.

he program is organized into three sequen-
l periods of training, one for apprentices,
e for journeymen, and one for masters.
dmission to each successive period is by
view only. Students enter the program as
prentices and train for a minimum of two
mesters. It is a period of intensive trial and
view structured to permit scrutiny of the
udent's artistic attitudes, aptitudes, and
tential. Apprentices assume limited
sponsibilities in the public performances of
e University Ensemble Theater. Those per-
itted by review to continue in the program
ain as journeymen for a minimum of two
nsecutive semesters. Emphasis is on the
udent's ability to synthesize knowledge, ex-
rience, skill, and imagination and to col-
borate on team efforts. Journeymen
sume more important responsibilities in
e public performances of the University
nsemble Theater. Those admitted by
view to candidacy for the degree train as
asters for a minimum of two consecutive
mesters. Focus is on the confirmation of ar-
tic skill, authority in craft and perfor-
ance, and originality of expression.
asters produce a major creative work and
are with the faculty and staff full respon-
bility for the public performances of the
niversity Ensemble Theater.

he prerequisite for all graduate instruction
Theater is by permission of instructor. For
mplete information, contact the Graduate
rogram Director.

ll courses carry 3 credits unless otherwise
ecified.

30 Pregraduate Readings in Theater
Individually arranged make-up readings in various aspects of theater history, literature, criticism, and theory.
Credit, 0.

15 Theater Management
The arts as a business. Practical experience in box office and house management.

16 Concert Theater Ensemble
Ensemble rehearsal, analysis, and performance in a concert theater format of student and faculty directed scripts developed from both dramatic and nondramatic literature. The aim is to build a repertory of new work for audiences on and off campus.
Credit, 3-6.

630 Readings in the History of Dramatic Theory I
Reading and research in critical theory of the drama, the stage, and theatrical performance from the earliest times through the French neoclassical period, organized in terms of the questions of truth and illusion. Exercises in theoretical apology, inquiry, and conceptualization in the mimetic arts.

631 Readings in the History of Dramatic Theory II
Continuation of Theater 630 from 1700 to the present.

632 Readings in the History of Dramatic Criticism I
Reading and research in the history of stage controversy and the critical reaction to plays and performances from the earliest times to 1700 with special attention to shifts in esthetic taste. Critical scholarship on selected authors, plays, and dramatic roles is traced to the present.

650 Readings in the History of Acting Theory
Reading and research in the major theoretical treatises on the art of acting.

651 Readings in the History of Directing Theory
Reading and research on the major theoretical treatises on the art of directing.

670 Readings in the History of Design Theory and Theater Architecture
Reading and research in the history of the conceptualization and construction of theater buildings from the fifth century B.C. to the present and of theories of design from the baroque period to the present.

671 Readings in the History of Architecture and Ornamentation for the Scenographer
Reading and research in the history of architecture and ornamentation from ancient Egypt to the late 19th century.

672 Readings in the History of Costume I
Reading and research in the development of silhouette, materials, garment construction, and the accessories of western costume from the ancients to 1650 with special attention to stage application.

673 Readings in the History of Costume II
Continuation of Theater 672 from 1650 to 1940.

691-95,791-95 Seminars in Theater Research
Detailed generative research on focused topics such as a group of related plays, a genre, a playwright, a period, a set of conventions or theatrical strategies. Discovery and application of relevant evidence (e.g., political, economic, philosophical, psychological, literary) to a particular analytical problem. Planned whenever possible with the current production season.
Credit, 1-3.

696-796 Independent Study
Independent projects by special contract.
Credit, 1-6.

697-797 Special Topics
Reading and research in selected topics in dramaturgy, performance, and scenography.
Credit, 1-3.

728 Playwriting Workshop
Tutorial scripting, individually arranged, primarily for degree students concentrating in playwriting. Disciplined writing in private; regular critical consultation with the major professor in playwriting; rehearsal, analysis, and performance of the playwright's original material with the Concert Theater Ensemble, in studio projects, and with faculty directors in the productions of the University Ensemble Theater.
Credit, 3-6.

692 Dramaturgy Workshop
Individually planned projects in production research and analysis primarily for degree students concentrating in theatrical criticism.
Credit, 3-6.

740 MFA Ensemble
Workshop in rehearsal and performance.
Credit, 3-6.

750 Directing Studio
Problems in play direction. Work chosen and closely supervised by the performance faculty and presented in a production format determined by the student's current needs and abilities and demands on the department's performance facilities.
Credit, 1-6.

Wildlife and Fisheries Biology

751 Concept and Style in Production
Methods of analyzing a script, forming a production concept, and determining details (in set, lighting, costume, music, movement, speech) which establish a coherent production style. Final project: specific production plan, with concept articulated and justified, and a consistent, thoroughly researched style defined by specific choices of production detail.

760 Scenic Design Studio
Tutorial projects in design theory and conceptualization and the solution of related technical problems. Design and technical assignments on University Ensemble Theater productions.
Credit, 3-6.

761 Lighting Design Studio
Tutorial projects in design theory and conceptualization and the solution of related technical problems. Design and technical assignments on University Ensemble Theter productions.
Credit, 3-6.

762 Costume Design Studio
Tutorial projects in design theory and conceptualization and the solution of related technical problems. Design and technical assignments on University Ensemble Theater productions.
Credit, 3-6.

769 Scenography Workshop
Special projects in concentrated periods of time on advanced topics in the crafts of scenography, such as scenic painting, furniture design and construction, make-up, use of plastics, millinery and wig construction, cobblery, electronic control systems and their maintenance.
Credit, 3-6.

799 MFA Project
Culminating creative project in the degree program. Prerequisite, degree candidacy.
Credit, 1-10.

Graduate Faculty

Donald R. Progulske, *Professor and Head of the Department of Forestry and Wildlife Management,* B.S., Massachusetts, 1950; M.S., Virginia Polytechnic Institute, 1952; Ph.D., University of Missouri, 1956.

Charles F. Cole, *Professor of Fisheries Biology and Graduate Program Director in Fisheries,* B.A., Cornell, 1950; Ph.D., 1957.

Frederick Greeley, *Associate Professor of Wildlife Biology and Graduate Program Director in Wildlife,* B.A., Kenyon College, 1941; M.S., Wisconsin, 1949; Ph.D., 1954.

Carl A. Carlozzi, *Assistant Professor of Resource Planning.*

Richard M. DeGraaf, *Assistant Professor of Wildlife Biology,* B.S., Rutgers, 1965; M.S., Massachusetts, 1971; Ph.D., 1975.

Wendell E. Dodge, *Associate Professor of Wildlife Biology,* B.A., New Hampshire, 1955; M.S., Massachusetts, 1958; Ph.D., 1967.

Joseph J. Kennelly, *Associate Professor of Wildlife Biology,* B.S., Cornell, 1958; M.S., 1960; Ph.D., 1964.

Joseph S. Larson, *Professor of Wildlife Biology,* B.S., Massachusetts, 1956; M.S., 1958; Ph.D., Virginia Polytechnic Institute, 1966.

Stephen P. Leatherman, *Assistant Professor of Fisheries Biology,* B.S., North Carolina State, 1970; Ph.D., Virginia, 1976.

Roger J. Reed, *Professor of Fisheries Biology,* B.S., Pittsburgh, 1951; M.S., 1953; Ph.D., 1956.

Michael R. Ross, *Assistant Professor of Fisheries Biology,* B.S., Miami, 1969; M.Sc., Ohio State, 1971; Ph.D., 1975.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM IN WILDLIFE AND FISHERIES BIOLOGY

Students completing the master's degree at the University or elsewhere may be accepted into our doctoral program but are formally admitted to candidacy only after the completion of a successful written and oral preliminary comprehensive examination based on concepts in general biology, ecology, fisheries and wildlife biology, and such other areas as may be stipulated by the student's Guidance Committee. Selection of courses is done by the student and his Guidance Co mittee and usually extends into areas beyo biology, leading the student towards co petency in independent research in eit fisheries or wildlife biology. A readi knowledge of one or more foreign langua sufficient to understand journal material m be required of doctoral students in cert areas of specialization. The degree norma requires three years of study beyond t master's degree.

THE MASTER OF SCIENCE DEGREE PROGRAM IN EITHER FISHERIES BIOLOGY OR WILDLIFE BIOLOGY

Students may be accepted into the maste degree program leading to a degree either fisheries biology or in wildlife biology. A plicants normally come from undergradua biological backgrounds or from appli biological areas such as fisheries or wildli Students with backgrounds in areas tangenti to the field of resource conservation m apply with the understanding that deficie cies could extend their time in the progra normally, two years are required for the co pletion of the master's degree. Candidat normally write theses worth 10 hours of cre and are given a final oral examination up its completion. Students completing a the must offer in addition a minimum of graduate credits, at least 6 of which must earned in 600-800 series courses. There is language requirement for the master's degre

General Information

The Forestry and Wildlife Management D partment offers graduate work leading to t Master of Science degree either in wildlife in fisheries biology and the Doctor of Phil sophy in wildlife and fisheries biology. Sta and facilities are available for supporting r search in upland and wetland arain biolog mammalian biology and management; ar estuarine, anadromous, and warmwater fis eries research as well as in the broader areas natural resource management. Gradua training is required for professional entran into state, federal, and private employment resource management and into teaching po tions stressing applied ecological principles both secondary and college-level program Most applicants come from biological bac grounds as undergraduates; occasional exce tions can be made, with the provision th deficiencies be made up. Applicants are e couraged to correspond with the Gradua

ogram Director in the Department for swers to specific questions, but all applica- n materials should be sent directly to the raduate School; scores from the Graduate ecord Examination, including the Advanc- Biology, must accompany all applications. he application must clearly indicate whether e candidate wishes to enter the wildlife ology or the fisheries biology degree pro- am. Research support at both the master's d doctoral level is frequently available ther from grants to individual faculty embers or through support provided by the operative Wildlife and Fishery Units; this tter support is provided by the Massachu- tts Division of Fisheries and Wildlife, the assachusetts Division of Marine Fisheries, e United States Fish and Wildlife Service d the Wildlife Management Institute. ndergraduates receiving wildlife or fisheries egrees from the University of Massachusetts e strongly urged to apply to other univer- ies in order to vary their professional train- g.

ll courses carry 3 credits unless otherwise ecified.

53 **Management of Wetland Wildlife**
The origin and distribution of wetlands in North America; identification and habitat requirements of wetland wildlife; public and private management of wetland environments. Prerequisites, Wild Biol 561 or permission of instructor. Mr. Larson

54 **Management of Upland Wildlife**
Life histories, identification, and habitat requirements of upland game birds, game mammals, and furbearers; management of upland habitats.
Mr. Greeley

55 **Techniques of Fisheries Biology**
Principles and techniques of fishery management, stressing population and growth dynamics, and field procedures.

57 **Laboratory in Principles of Fishery Biology**
Field techniques in fishery biology; operation and use of fishery research and management equipment. Laboratory analysis of field-collected data using automatic data processing; manuscript preparation. Corequisite, Fish Biol 565. One 4-hour laboratory.
Credit, 1.

71 **Introduction to Marine Fisheries**
Factors affecting world marine fisheries resources and development. Review of selected species of commercial importance and of selected world fisheries. Several overnight field trips requiring Saturday attendance by arrangement. Prerequisites, Fish Biol 565 and Zool 600 or permission of instructor. Mr. Cole

597 **Topics in Wildlife Biology**
One or more topics of special or current interests to advanced undergraduates and beginning graduate students covered in lectures, discussion or demonstration laboratory.
Credit, 1-6 per semester.

612 **Shipboard Oceanographic Operations**
The planning and execution of an integrated research training cruise on board a research vessel. Familiarizes students with standard oceanographic procedures and normal shipboard equipment and its use. Prerequisite, graduate status in a basic or applied science related to the sea. One two-hour class per week and a 3-5 day training cruise (also listed as Marine Sci 712). Mr. Cole

620 **Ecological Interactions of Fishes**
Overview of fish population interactions with the environment. Two two-hour discussions per week. Prerequisite, permission of instructor. Mr. Ross

672 **Dynamics of Exploited Fish Populations**
The development and manipulation of mathematical models of fish stocks to demonstrate sustained yield principles. Two one-hour lectures and one two-hour discussion-practice session. Prerequisite, permission of instructor. Mr. Cole

699 **Master's Thesis**
Credit, 6-10

756 **Fisheries Biometrics**
The statistical treatment of fisheries research problems, including studies on age and growth, food habits, population estimates, condition factors, and population dynamics. Prerequisites, Fish Biol 565 and Stat 121 or permission of instructor.

757 **Advanced Fisheries Management**
Scientific basis for modern fisheries management, emphasizing coldwater fishes, anadromous species, large reservoir and river fisheries, and conflicts of interest with other water uses. Prerequisites, Fish Biol 565D and 756, or permission of instructor.

758 **Advanced Wildlife Management**
Interrelationships of wildlife and forestry, grazing, cultivation, pollution, and other uses of natural resources.

797 **Topics in Wildlife Biology**
One or more topics of special or current interest to advanced graduate students covered in lectures, discussion or demonstration laboratory.
Credit, 1-6 per semester

899 **Doctoral Dissertation**
Credit, 18.

Graduate Faculty

John D. Palmer, *Professor and Chairman of the Department of Zoology,* B.A., Lake Forest, 1957; M.S., Northwestern, 1959; Ph.D., 1962.

Theodore D. Sargent, *Professor and Graduate Program Director,* B.S., Massachusetts, 1958; M.S., Wisconsin, 1960; Ph.D., 1963.

Lawrence M. Bartlett, *Professor,* B.S., Massachusetts, 1939; M.S., 1942; Ph.D., Cornell, 1949.

Margery C. Coombs, *Assistant Professor,* B.A., Oberlin College, 1967; M.A., Columbia, 1968; Ph.D., 1973.

Vincent G. Dethier, *Gilbert L. Woodside Professor,* A.B., Harvard, 1936; A.M., 1937; Ph.D., 1939.

D. Craig Edwards, *Associate Professor,* B.A., Swarthmore, 1961; Ph.D., Chicago, 1965.

Bronislaw M. Honigberg, *Professor,* B.A., California at Berkeley, 1943; M.A., 1946; Ph.D., 1950.

Mindaugas S. Kaulenas, *Associate Professor,* B.Sc., University of London, 1961; Ph.D., 1964.

David J. Klingener, *Associate Professor,* B.A., Swarthmore, 1959; A.M., Michigan, 1961; Ph.D., 1964.

Joseph G. Kunkel, *Associate Professor,* B.A., Columbia, 1964; Ph.D., Case Western Reserve, 1968.

Bruce R. Levin, *Associate Professor,* B.S., University of Michigan, 1963; M.S., 1964; Ph.D., 1967.

Bradford C. Lister, *William Smith Clark Visiting Assistant Professor,* B.A., Tufts, 1969; Ph.D., Princeton, 1974.

Stuart D. Ludlam, *Associate Professor,* B.A., Cornell, 1960; Ph.D., 1964.

Arthur P. Mange, *Associate Professor,* B.S., Cornell, 1954; Wisconsin, 1958; Ph.D., 1963.

John G. Moner, *Professor,* Johns Hopkins, 1949; M.A., Princeton, 1951; Ph.D., 1953.

Drew M. Noden, *Assistant Professor,* B.A., Washington and Jefferson; Ph.D., Washington, 1972.

Melinda A. Novak, *Assistant Professor of Zoology and Psychology,* B.A., Connecticut, 1967; M.A., Wisconsin, 1971; Ph.D.,1973.

William B. Nutting, *Professor,* B.S., Massachusetts, 1940; M.S., 1948; Ph.D., Cornell, 1950.

W. Brian O'Connor, *Associate Professor,* B.S., St. Michael's, 1962; M.S., Purdue, 1966; Ph.D., 1967.

Herbert E. Potswald, *Associate Professor,* B.A., University of Minnesota, 1959; Ph.D., University of Washington, 1964.

Harold Rauch, *Professor,* B.S., Queens College, 1944; M.S., Illinois, 1947; Ph.D., Brown, 1950.

John L. Roberts, *Professor,* B.S., Wisconsin, 1947; M.S., 1948; Ph.D., California at Los Angeles, 1952.

Larry S. Roberts, *Professor,* B.S., Southern Methodist, 1956; M.S., Illinois, 1958; D.Sc., Johns Hopkins, 1961.

H. Duncan Rollason, Jr., *Professor,* B.A., Middlebury, 1939; M.A., Williams, 1941; M.A., Harvard, 1943; Ph.D., 1949.

Dennis G. Searcy, *Associate Professor,* B.S., Oregon State, 1964; Ph.D., California at Los Angeles, 1968.

James G. Snedecor, *Professor,* B.S., Iowa State, 1939; Ph.D., Indiana University, 1947.

Dana P. Snyder, *Associate Professor,* B.S., Illinois, 1947; M.S., 1948; Ph.D., Michigan, 1951.

Alastair M. Stuart, *Professor,* B.Sc., Glasgow, 1953; Ph.D., Harvard, 1961.

Christopher L.F. Woodcock, *Professor,* B.Sc., University College, London, 1963; Ph.D., 1966.

Gordon A. Wyse, *Associate Professor,* B.A., Swarthmore, 1961; M.S., University of Michigan, 1963; Ph.D., 1967.

The Department of Zoology offers the Master of Science and Doctor of Philosophy degrees. The following major fields are represented in the department: Animal Behavior, Biochemical Zoology, Cytology (including fine structure), Developmental Biology, Ecology, Genetics, Invertebrate Zoology, Limnology, Parasitology, Physiology, Population Biology, Vertebrate Paleontology, and Vertebrate Zoology.

Applicants for admission to the advanced degree programs must have a bachelor's degree or its equivalent, at least 10 credit hours in biology and rank in the upper 20% of their class in college. A recommended undergraduate curriculum would include courses in comparative anatomy, e bryology, genetics, invertebrate zoolo physiology, mathematics (through elem tary calculus), physics, organic chemist and either French, German or Russian.

Applicants who already have a Maste degree or its equivalent may be accepted entry into the Ph.D. program. All applica should submit Graduate Record Exami tion scores to the Graduate School.

Requests for further information about t graduate program should be directed Chairman, Department of Zoology.

ADVANCED DEGREES

FOR STUDENT'S ENTERING WITH A BACHELOR'S DEGREE AS THEIR HIGHEST DEGREE, THE FOLLOWING REQUIREMENTS MUS BE MET:

REQUIREMENTS COMMON TO BOTH THE M.S. AND Ph.D. DEGREES

1. All students entering without a Maste degree must demonstrate their proficien in zoology by taking a written Qualifyi Examination, given in the spring semest The exam may be taken twice. The stude will choose six areas in which to be exami ed: one area from each of the followi four groups, plus two additional areas fr these groups: a. Genetics; Developmen Biology. b. Cell Physiology and Cytolog Physiology. c. Ecology; Behavior. Systematics and Evolution; Morphology.
2. Teaching is regarded as an important pa of graduate training, and all students a required to teach half-time for a minimu of two semesters, unless equivalent exp ience has been obtained previously another institution.
3. A Foreign language may be required. T requirement is at the option of t student's guidance committee, who det mine the level and form in which any r quirement may be met. In any event more than one language can be require

REQUIREMENTS FOR THE M.S.

1. All requirements under Requiremer Common to M.S. and Ph.D. Degre above.
2. EITHER:
   a. Acceptance of a thesis containing o ginal research (Zoology 699, 10 cr dits); 20 graduate credits, at least 6

which must be earned in the 600-899 series in Zoology (or in 600-899 level courses approved for major credit in Zoology).

b. A program of original research under one supervisor but without the preparation of a thesis. This program will consist of 9 credits of Zoology Masters Project. In addition, 21 graduate credits must be taken, at least 6 of which must be earned in the 600-899 series in Zoology (or in 600-899 level courses approved for major credit in Zoology).

c. Three credits of Zoology Special Problems, to be completed in one semester; 29 additional graduate credits must be taken with at least 12 being from the 600-899 series in Zoology (or in 600-899 level courses approved for major credit in Zoology).

The passing of a final examination.

EQUIREMENTS FOR THE PH.D.

All requirements under Requirements Common to M.S. and Ph.D. Degrees, above.

The passing of an Oral Preliminary Examination demonstrating advanced knowledge of one major and two minor fields selected from the following: Animal Behavior, Cell Biology, Developmental Biology, Ecology, Genetics, Parasitology, Physiology, Systematics and Evolution. Equivalent work in another department may be substituted as one minor area: this requires the consent of the student's guidance committee and the Departmental Graduate Operations Committee. Note: The Graduate School requires that the departmental language requirement must be met before the Preliminary Examination can be taken.

The preparation of a thesis with original research.

The passing of a final examination.

OR STUDENTS ENTERING WITH A ASTER'S DEGREE, THE FOLLOWING EQUIREMENTS MUST BE MET:

EQUIREMENTS FOR THE PH.D.

All requirements common to M.S. and Ph.D. Degrees (above) *except* the passing of a qualifying examination.

Acceptance by a faculty member willing to act as a supervisor.

The passing of an oral preliminary examination (see Ph.D. requirements above).

The preparation of a thesis containing original research.

5. The passing of a final examination.

A more detailed account of the requirements for the advanced degrees, the qualifying examination, and a timetable (regarded as a standard for "reasonable and satisfactory progress") are given in a Departmental booklet. This is sent to all incoming students and together with the above, and the Graduate School rules, delineates the requirements for the degrees.

All courses carry 3 credits unless otherwise specified.

510 Principles of Genetics
Mechanisms of heredity in plants and animals, emphasizing transmission and action of genes, population genetics, and evolution.
Mr. Levin, Mr. Mange, Mr. Rauch

512 Introductory Population Biology
An evolutionary and integrated introduction to the demographic, ecological, genetic, and geographic aspects of the biology of populations. Consideration of social implications and utility. Background in probability theory, statistics, and mathematical and numerical modelling is presented. Two class hours and one 2-hour period for discussion and problem solving. Mr. Levin

514 Population Genetics
The causes of evolution, emphasizing genetical, ecological, and behavioral aspects. Some problems approached through mathematical models, stressing their biological implications. Offered fall semester. Prerequisites, introductory zoology and Math 123 or 135; and permission of instructor required.

521 Comparative Vertebrate Anatomy
Structure and phylogeny of vertebrates. Laboratory work illustrating evolutionary trends and specializations. Experience in dissection. Two class hours, one 3-hour laboratory period.
Ms. Coombs, Mr. Klingener

522 Vertebrate Fossils and Evolution
Introduction to vertebrate history emphasizing fossil forms. Topics include: changes in locomotory, feeding, and defense structures, modes of life of bizarre extinct animals, nature of transitions between groups, and stratigraphic uses of vertebrate fossils. Some topics illustrated by examination of museum specimens. Offered in alternate years. Prerequisite, an introductory course in zoology, geology, or physical anthropology. Ms. Coombs

523 Histology
Structure of cells, tissues and organs as related to function, with emphasis on the mammal; introduction to microtechnique. Two class hours, one 3-hour laboratory period.
Mr. Potswald, Mrs. Rollason

527 Embryology
A survey of animal development combining descriptive and analytical approaches. Developmental mechanisms and concepts emphasized. Laboratories cover both descriptive and experimental embryology, utilizing living material whenever possible. Offered fall semester. Two class hours, one 3-hour laboratory period. Mr. Noden

530 Biology of the Invertebrates I
Ecology, physiology, development and phylogeny of Protozoa, Porifera, Cnidaria, Platyhelminthes, Nematoda, Mollusca, etc. Two class hours, one 3-hour laboratory. Offered spring semester. Mr. Nutting, Mr. L.S. Roberts

531 Biology of the Invertebrates II
Ecology, physiology, development and phylogeny of Annelida, Arthropoda, Ectoproct, Echinodermata, etc. Two class hours, one 3-hour laboratory. Offered fall semester. Zoology 530 not a prerequisite. Mr. Nutting, Mr. Potswald Mr. L.S. Roberts

532 General Parasitology
Morphology, life cycles, and physiology of protozoan and helminth parasites. Emphasis on broad aspects of parasitism. Two class hours, one 3-hour laboratory period. Offered fall semester. Prerequisites, introductory zoology and chemistry. Mr. Honigberg

534 Biological Limnology
Nature and ecology of the flora and invertebrate fauna of lakes. Primary productivity, eutrophication, relationships between environmental conditions and lake biota and use of organisms as environmental indicators emphasized. Offered fall semester. Mr. Lunlam

535 Limnology
The physical, chemical, and biological aspects of inland waters. Two class hours, one 3-hour laboratory or field trip. Offered spring semester.
Mr. Ludlam

537 Ecology
A survey of modern ecology. Topics covered are: energy and nutrient budgets, community ecology, species diversity, population growth and regulation, and species interactions. Two class hours, and one 3-hour laboratory period (field trips and experimentation). Offered fall semester.

540 Vertebrate Zoology
Morphology and biology of recent vertebrates. Emphasis on freshwater fishes, amphibians and reptiles. Laboratories combine descriptive and analytical summaries of the major groups represented in North American fauna. Two class hours, one 3-hour laboratory period, field trips. Offered fall semester.
Mr. Andrews

542 Ichthyology
Structure and function of fishes, particularly marine teleosts and cartilagenous species; aspects of development, distribution, adaptations to aquatic habitats. Laboratories consider anatomy, diversity and biological bases for classification of principal taxa. Two class hours, one 3-hour laboratory period. Offered spring semester. Mr. Andrews

544 Ornithology
Avian biology including structural and functional adaptations; emphasis on behavioral patterns. Laboratory covers gross and microscopic anatomy. Two class hours, one 3-hour laboratory period. Offered spring semester.
Mr. Bartlett

548 Mammalogy
Evolution, distribution, classification and ecology of mammals. Laboratory includes identification of local fauna and selected ecological techniques. Two class hours, one 3-hour laboratory period. Offered spring semester.
Mr. Snyder

550 Animal Behavior
The biological bases of animal behavior, with an analysis of the methods and objectives of current research. Three class hours. Offered fall semester. Prerequisites, introductory zoology or introductory psychology or permission of instructor.
Mr. Sargent, Mr. Stuart

560 Cell Physiology
The structure and function of cells. Emphasis on membrane systems, active transport, DNA, RNA, protein synthesis, genetic and metabolic regulation, and the mechanisms of cellular movement. Three class hours, one 3-hour laboratory period. Prerequisites, Biochem 420 or 523 is advised.
Mr. Kaulenas, Mr. Kunkel
Mr. Moner, Mr. Searcy

566 Vertebrate Physiology
Function of organs and organ systems in vertebrates. Three class hours, one 3-hour laboratory period. Offered fall semester. Mr. Snedecor

568 Endocrinology
The importance of the endocrines in their control over normal functions (growth, metabolism, reproduction, etc.) in a variety of animals. Two class hours, one 3-hour laboratory period. Offered spring semester. Prerequisite, Zool 566. Mr. Snedecor

570 Comparative Physiology
Physiological principles involved in adaptations of animals to their environment; emphasis in the laboratory on experimental methods used to study adaptive mechanisms. Three class hours, one 3-hour laboratory period. Offered spring semester. Mr. J.L. Roberts

571 Biological Rhythms
The capability to "tell time" in plants, animals and man; the nature and role of the biological clock in photoperiodism and animal orientation. Mr. Palmer

575 Biology of Protozoa
Structure and physiology of Protozoa, the contributions made to basic problems of biology through studies of these organisms. Lectures, readings, laboratory demonstrations and laboratory exercises. Format varies from year to year. Total, 5 hours lecture and laboratories per week. Offered spring semester.
Mr. Honigberg

580 Developmental Biology
Lectures emphasize physiological and biochemical aspects of development. Laboratory period used for demonstrations, discussions, and literature reviews, as well as for experimental work. Two class hours, one 3-hour laboratory period. Mr. Kaulenas, Mr. Kunkel

600 Seminar in Teaching Techniques

699 Master's Thesis
Credit, 10.

702 General Cytology
The morphological features of cells in relation to their function. Lecture seminar reports and individual laboratory work.

707 Biological Structure Analysis
A practical approach to methods for st dying biological structures above th molecular level. Lectures, discussio and laboratory experiments and demo strations cover light and electr microscopy, X-ray diffraction, ar related techniques. Prerequisite, permi sion of instructor. Mr. Woodco

708 Electron Microscopy
A practical approach to the electr microscopy of biological specimens which each student will undertake a l project. Basic theory will be presented lecture sessions. Prerequisite, permissi of instructor. Zool 707 recommended.
Mr. Woodco

710 Fine Structure and Function of Cells
Lectures, discussions, reading, ar reports on fine structure of cells with en phasis on functional aspects.
Mr. Woodco

720 Experimental Embryology
Laboratory exercises covering *in vivo* ar *in vitro* techniques currently used developmental and cell biologic research. Preparation of culture medi determination of cell cycle and grow rates, effects of drugs on muscle, nerve cartilage differentiation *in vitro,* ar methods of embryonic transplantatio Offered spring semester, alternate yea Two laboratory periods and one semin per week. Permission of instructor r quired. Mr. Nod

721 Developmental Neurobiology
Analysis of experiments which elucida mechanisms underlying vertebra neurogenesis. Emphasis on interactio necessary for the morphological, ph siological and biochemical developme of neurons and nerve networks, and th interplay between genetic and e vironmental influences underlying th ontogeny of behavior. Offered sprin semester, alternate years. Permission instructor required. Mr. Nod

722 Vertebrate Paleontology
An introductory but rigorous overview current thought in vertebrate paleo tology. Topical lectures deal with trend transitions, functional anatomy, ar faunal evolution; laboratories emphasi specific anatomic distinguishing fe tures, taxonomy, and geographic ar

geologic ranges. Offered in alternate years. Permission of instructor required. 3 class hours, 1 3-hour laboratory.
Ms. Coombs

4 Advanced Developmental Biology
Molecular basis of cell and tissue differentiation. Emphasis on gene action, synthesis and function of macromolecules, and hormonal control of developmental processes. Offered spring semester. Mr. Kaulenas

0 Physiological Genetics
The nature of the gene and its action in the developmental and physiological processes of the organism. Offered spring semester. Mr. Kaulenas, Mr. Rauch

0 Advanced Invertebrate Zoology
Continuation of Zoology 531. Emphasis on development. Offered spring semester. Mr. Potswald

4 Metazoan Symbiosis
Host-symbiont relationships of mutuals, commensals, and parasites. Systematics, morphology, life histories, and physiology of metazoan symbionts of animals. Laboratory on research techniques. Offered fall semester. Prerequisites, a course in invertebrate zoology or parasitology; permission of instructor.
Mr. L.S. Roberts

0 Selected Topics in Animal Behavior
Topics selected from active areas of current research *(e.g.,* communication, development, systems analysis, sociobiology) with an emphasis on critical analyses of theory and methodology. Three hours lecture-discussion-reports. Offered spring semester. Prerequisite, Zool 550, or permission of instructor.
Mr. Sargent, Mr. Stuart

1 Biology of Animal Populations
Organization and process in the local population. The viewpoint is holistic, emphasizing the population as an integrated functional unit of life. Extensive student participation in discussion and presentation of critiques of current concepts. Offered fall semester. Permission of instructor required. Mr. Snyder

5 Systematics and Evolutionary Mechanisms
A theoretical consideration of evolution and systematics at and above the species level. Offered fall semester.
Mr. Klingener

757 Population and Community Ecology
Distribution patterns of organisms, population growth and regulation, evolution of life-history strategies, interspecific populational interactions (especially competition and predation), and community structure and energetics. Sampling methods and the use of models. Two 2-hour lecture-discussion periods, one field trip. Offered fall semester.
Mr. Edwards

770 Comparative Neurophysiology
Sensory and nervous function in invertebrates and vertebrates. Emphasis on integrative mechanisms underlying animal behavior. Offered fall semester. Permission of instructor required. Mr. Wyse

780 Physiological Regulatory Mechanisms
Physiological regulation and its basis in cells and organisms.
Mr. J.L. Roberts, Mr. Moner

789 Writing for the Life Sciences
Principles and techniques of scientific writing for students in the life sciences whose researches are well advanced. Offered spring semester. Permission of instructor required. Mr. Honigberg

899 Doctoral Dissertation
Credit, 10.

Partial List of Courses in Other Departments Which May Be Taken For Major Credit

AN SCI 716 Quantitative Inheritance and Selection

AN SCI 724 Advanced Avian Physiology

AN SCI 725 Mammalian Reproduction

BOTANY 611, 612 Advanced Plant Physiology

BOTANY 621 Advanced Plant Ecology

BIOCHEM 729 Enzymes

ENT 511 Insect Behavior

MICROBIOL 710 Advanced Immunology

MICROBIOL 720 Mammalian Virology

MICROBIOL 770 Microbial Genetics

AN SCI 512 Physiology of Reproduction

BOTANY 521 Plant Ecology

BOTANY 571 Devel. Plant Cytology

BIOCHEM 523-524 and/or 623-624 General Biochemistry

CHEM 504 Radiochemistry

CHEM 471, 472 Elementary Physical Chemistry

GEOL 540 Invertebrate Paleontology

MICROBIOL 510 General Microbiology

MICROBIOL 540 Immunology

MICROBIOL 525 Virology

Faculty Emeriti

Agricultural and Food Economics

Fayette Hinds and Branch, *Extension Professor Emeritus of Agricultural Economics and Farm Management.*

Adrian Herve Lindsey, *Professor Emeritus of Agricultural Economics and Head Emeritus of the Department of Agricultural Economics and Farm Management.*

David Rozman, *Research Professor Emeritus.*

Ruth Evelyn Sherburne, *Instructor Emeritus.*

Animal Science

Kenneth Bullis, *Professor Emeritus* (1961).

Fred P. Jeffrey, *Professor Emeritus* (1971).

Henry Van Roekel, *Professor Emeritus* (1965).

Botany

Albert C. Smith, *Professor Emeritus*

Business Administration

Harold E. Hardy, *Professor Emeritus of Marketing.*

Henry Benjamin Kirshen, *Dean Emeritus of the School of Business Administration.*

Rudolph Harold Kyler, *Associate Professor Emeritus of Business Administration.*

Chemical Engineering

Hans C. Duus, *Professor Emeritus*

E. Ernest Lindsey, *Professor Emeritus* (1978).

Chemistry

Emmett Bennett, *Professor Emeritus.*

Civil Engineering

Bernard B. Berger, *Professor Emeritus* (1978.).

Gabriel Ho[illegible] *Professor Emeritus* (1978).

Elmer C. Osgood, *Professor Emeritus* (1973).

Economics

Bruce R. Morris, *Professor Emeritus.*

English

Ellsworth Barnard, *Professor Emeritus* (1973).

Marie Campbell, *Professor Emeritus* (1973).

H. Leland Varley, *Professor Emeritus* (1973).

Entomology

Charles P. Alexander, *Professor Emeritus* (1959).

William B. Becker, *Professor Emeritus.*

Frank R. Shaw, *Professor Emeritus* (1970).

Marion E. Smith, *Associate Professor Emeritus* (1971).

Harvey L. Sweetman, *Professor Emeritus* (1966).

Ellsworth H. Wheeler, *Professor Emeritus* (1969).

Food and Agricultural Engineering

Gerald A. Fitzgerald, *Professor Emeritus* (1970).

Food Science and Technology

Arthur S. Levine, *Professor Emeritus* (1968).

Forestry and Wood Technology

Harold B. Gatslick, *Professor Emeritus of Wood Technology.*

J. Harry Rich, *Professor Emeritus of Forestry* (1958).

French

Stowell C. Goding, *Professor Emeritus.*

Germanic Languages and Literatures

Frederick c. Ellert, *Professor Emeritus* (1970).

History

Theodore C. Caldwell, *Professor Emeritus* (1970).

Harold Cary, *Professor Emeritus* (1969).

Home Economics

Gladys Mae Cook, *Associate Professor Emeritus* (1968).

May Estella Foley, *Extension Professor Emeritus.*

Barbara Higgins, *Extension Professor Emeritus* (1968).

N. May Larson, *Extension Professor Emeritus.*

Mary E. Lojkin, *Associate Professor Emeritus* (1969).

H. Ruth McIntire, *Professor Emeritus.*

Helen Swift Mitchell, *Dean Emeritus of the School of Home Economics* (1960).

Anne Williams Wertz, *Commonwealth Professor Emeritus of Research* (1963).

Industrial Engineering and Operations Research

Stanley Lippert, *Professor Emeritus* (1978)

Philosophy

Roger W. Holmes, *Mary Lyon Professor Emeritus* (1971)

Alice A. Lazerowitz, *Sophia and Austin Smith Professor Emeritus* (1972)

Morris Lazerowitz, *Sophia and Austin Smith Professor Emeritus* (1973)

Clarence Shute, *Professor Emeritus* (1971).

Plant Pathology

Walter M. Banfield, *Professor Emeritus* (1972).

Constantine J. Gilgut, *Professor Emeritus.*

Emil Frederick Guba, *Commonwealth Professor Emeritus.*

Linus Hale Jones, *Assistant Research Professor Emeritus.*

Malcolm A. McKenzie, *Professor and Director, Shade Tree Laboratory Emeritus* (1973).

Plant and Soil Sciences

John S. Bailey, *Professor Emeritus* (1964).

Arthur P. French, *Professor Emeritus* (1961).

William H. Lachman, *Professor Emeritus.*

Associate Five-College Graduate Faculty

:ant B. Snyder, *Professor Emeritus* 963).

ark L. Thayer, *Professor Emeritus* 957).

ilbur H. Thies, *Professor Emeritus* 955).

artin E. Weeks, *Professor Emeritus.*

arold E. White, *Professor Emeritus* 963).

avic Languages and Literature

on Pressman, *Professor Emeritus.*

:orge Ivask, *Professor Emeritus*

ciology

Henry Korson, *Professor Emeritus.*

Vildlife and Fisheries Biology

illiam G. Sheldon, *Leader Emeritus of operative Wildlife Research Unit* (1972).

euben E. Trippensee, *Professor Emeritus Wildlife Management* (1960).

E. Jefferson Murphy, *Five-College Coordinator,* A.B., Emory University, 1948; M.A., 1949; Ph.D., University of Connecticut, 1973.

Amherst College

Hugh J.J. Aitken, *Professor of Economics,* M.A., St. Andrews University, Scotland, 1943; M.A., University of Toronto, Canada, 1948; Ph.D., Harvard, 1951.

Lawrence A. Babb, *Associate Professor of Anthropology and Sociology,* B.A., University of Michigan, 1963; M.A., University of Rochester, 1965; Ph.D., 1969.

Bruce B. Benson, *Professor of Physics,* B.A., Amherst, 1943; M.S., Yale, 1945; Ph.D., 1947.

Norman Birnbaum, *Professor of Sociology,* A.B., Williams, 1947; M.A., Harvard, 1951; M.A., Oxford, England, 1960; Ph.D., Harvard, 1958.

Gerald P. Brophy, *Professor of Geology,* A.B., Columbia, 1951; M.A., 1953; Ph.D., 1954.

Lincoln P. Brower, *Professor of Biology,* A.B., Princeton, 1953; Ph.D., Yale, 1957.

Joan R. Dassin, *Assistant Professor of English,* B.A., Brandeis, 1969; M.A., 1972; Ph.D., Stanford, 1974.

Asa J. Davis, *Professor of History and Black Studies,* B.A., Wilberforce University, 1948; S.T.B., Harvard, 1951: S.T.M., 1952: Ph.D., 1960.

Colby W. Dempesy, *Professor of Physics,* B.A., Oberlin, 1952; M.A., Rice, 1955; Ph.D., 1957.

Jan Emil Dizard, *Associate Professor of Sociology,* B.A., University of Minnesota; M.A., 1964; Ph.D., University of Chicago 1967.

Richard D. Fink, *Professor of Chemistry,* A.B., Harvard, 1958; Ph.D., Massachusetts Institute of Technology, 1962.

Richard M. Foose, *Professor of Geology,* B.S., Franklin and Marshall, 1937; M.S., Northwestern, 1939; Ph.D., Johns Hopkins, 1942.

Prosser Gifford, *Professor of History,* B.A., Yale College, 1951; B.A., Oxford University, 1953; LL.B., Harvard University, 1956; Ph.D., Yale University, 1964.

Elmo Giordanetti, *Professor of Romance Languages,* B.A., Bowdoin, 1951; M.A., Princeton, 1954; Ph.D., 1959.

Joel E. Gordon, *Professor of Physics,* A.B., Harvard, 1952; Ph.D., Columbia, 1958.

George S. Greenstein, *Associate Professor of Astronomy,* B.S., Stanford University, 1962; Ph.D., Yale University, 1968.

Robert Freeman Grose, *Associate Professor of Psychology,* B.A., Yale University, 1944; M.S., 1947; Ph.D., 1953.

Ernest A. Johnson, Jr., *Professor of Romance Languages,* B.A., Amherst, 1939; M.A., Chicago, 1940; Ph.D., Harvard, 1950.

George Kateb, *Professor of Political Science,* A.B., Columbia, 1952; A.M., 1953; Ph.D., 1960.

Thomas R. Kearns, *Associate Professor of Philosophy,* B.A., University of Illinois, 1959; LL.B., University of California, 1962; M.A., 1964; Ph.D., University of Wisconsin, 1968.

William E. Kennick, *Professor of Philosophy,* A.B., Oberlin, 1945; Ph.D., Cornell, 1952.

Allen Kropf, *Professor of Chemistry,* B.S., Queens, 1951; Ph.D., Utah, 1954.

Robert May, *Clinical Psychologist,* B.A., Wesleyan University, 1962; Ph.D., Harvard University, 1969.

Rose R. Olver, *Professor of Psychology,* B.A., Swarthmore College, 1958; Ph.D., Radcliffe College, 1962.

Donald S. Pitkin, *Professor of Anthropology,* B.A., Harvard, 1947; M.A., 1950; Ph.D., 1954.

Robert H. Romer, *Professor of Physics,* A.B., Amherst, 1952; Ph.D., Princeton, 1955.

George S. Sacerdote, *Assistant Professor of Mathematics,* S.B., Massachusetts Institute of Technology, 1967; Ph.D., Illinois, 1976.

Marc S. Silver, *Professor of Chemistry,* A.B., Harvard, 1955; Ph.D., California Institute of Technology, 1959.

Charles A. Sorenson, *Assistant Professor of Psychology,* B.A., California, 1966; Ph.D., 1971.

Dudley H. Towne, *Professor of Physics,* B.S., Yale, 1947; M.A., Harvard, 1949; Ph.D., 1954.

Henry T. Yost, Jr., *Professor of Biology,* A.B., Johns Hopkins, 1947; Ph.D., 1951.

Hampshire College

Merle Bruno, *Associate Professor of Biology,* B.S., Syracuse, 1960; M.A., Harvard, 1963; Ph.D., 1971.

Raymond P. Coppinger, *Associate Professor of Biology,* B.A., Boston, 1959; M.A., Massachusetts, 1964; Ph.D., 1968.

Louise Farnham, *Associate Professor of Psychology,* B.A., Minnesota, 1954; Ph.D., 1962.

John M. Foster, *Professor of Biology,* B.A., Swarthmore, 1950; M.A., Harvard, 1953; Ph.D., 1954.

Courtney P. Gordon, *Associate Professor of Astronomy,* B.A., Vassar, 1961; M.A., Michigan, 1963; Ph.D., 1967.

Kurtiss J. Gordon, *Associate Professor of Astronomy,* B.S., Antioch, 1964; M.A., Michigan, 1966; Ph.D., 1969.

Allen R. Hanson, *Assistant Professor of Computer Science,* B.S., Clarkson 1964; M.S., Cornell, 1966; Ph.D., 1969.

Gloria Joseph, *Professor of Education,* B.S., New York University; M.A., City College of New York; Ph.D., Cornell, 1967.

Richard C. Lyon, *Professor of English and American Studies,* B.A., Texas, 1951; B.A., Cambridge, 1953; M.A., 1955; M.A., Connecticut, 1958; Ph.D., Minnesota, 1962.

Robert Marquez, *Associate Professor of Hispanic and American Literature,* B.A., Brandeis, 1966; M.A., Harvard, 1967; Ph.D., 1973.

Neil Stillings, *Assistant Professor of Psychology,* B.A., Amherst, 1966; Ph.D., Stanford, 1971.

Michael R. Sutherland, *Assistant Professor of Statistics,* B.A., Antioch, 1967; Ph.D., Harvard, 1974.

Robert P. von der Lippe, *Associate Professor of Sociology,* B.A., Stanford, 1953; M.A., 1958; Ph.D., 1962.

Barbara Yngvesson, *Associate Professor of Anthropology,* A.B., Barnard 1962; Ph.D., California at Berkeley, 1970.

Mount Holyoke College

Oliver E. Allyn, *Professor of Theatre Arts,* B.F.A., Art Institute of Chicago, 1954; M.F.A., 1956.

John J. Baloueff, *Associate Professor of Russian Languages and Literatures,* B. .és. L., Paris, France, 1935; Diplome, 1937; Diploma, Antwerp, 1940; M.A., Stetson University, 1965.

Robert F. Berkey, *Professor of Religion,* B.A., Otterbein College, 1952; B.D., and S.T.M., Oberlin, 1955-56; Ph.D., Hartford Seminary Foundation, 1958.

G. Lee Bowie, *Associate Professor of Psychology and Education,* B.A., Yale, 1965; Ph.D., Stanford, 1970.

James M. Bruce, *Associate Professor of Sociology and Anthropology,* B.A., University of Oklahoma, 1961; M.A., 1965; Ph.D., Brown, 1969.

Mary K. Campbell, *Associate Professor of Chemistry,* B.A., Rosemont College, 1960; Ph.D., Indiana University, 1966.

Sidonie Cassirer, *Professor of German,* B.A., Hunter College, 1948; M.A., Yale, 1950; Ph.D., 1957.

Joan E. Ciruti, *Professor of Spanish,* B.A., Southeastern Louisiana College, 1950; M.A., University of Oklahoma, 1954; Ph.D., Tulane, 1959.

Tom R. Dennis, *Associate Professor of Astronomy,* B.A., University of Michigan, 1963; M.A., 1964; M.A., Princeton, 1963; Ph.D., 1970.

Francis J. DeToma, *Associate Professor of Biological Sciences,* A.B., Clark University, 1962; M.Sc., Chicago, 1965; Ph.D., 1968.

Paul Anthony Dobosh, *Assistant Professor of Chemistry,* B.S., Carnegie Institute of Technology, 1965; M.S., 1967; Ph.D., Carnegie-Mellon University, 1969.

John W. Durso, *Professor of Physics and of Computer Studies,* A.B., Cornell, 1959; Ph.D., Pennsylvania State University, 1964.

James D. Ellis, *Professor of English,* B.A., Oberlin, 1957; M.A., University of Iowa, 1961; Ph.D., 1964.

Peter M. Enggass, *Professor of Geography,* B.A., University of Michigan, 1955; M.A., 1959; Ph.D., 1966.

Anthony Edward Farnham, *Professor of English,* A.B., California at Berkeley, 1951; A.M., Harvard University, 1957; Ph.D., 1964.

Deane W. Ferm, *Lecturer in Religion,* B.A. College of Wooster, 1949; M.A., Yale, 1952; B.D., 1953; Ph.D., 1954.

Jean Grossholtz, *Professor of Political Science,* B.A., Pennsylvania State, 1956; M.A., University of Denver, 1957; Ph.D., Massachusetts Institute of Technology, 19

George E. Hall, *Professor of Chemistry,* B.S., Yale 1933; Ph.D., 1942.

Jean C. Harris, *Professor of Art,* B.A., Smith, 1949; A.M., Radcliffe, 1954; Ph.D 1961.

Anna J. Harrison, *Professor of Chemistry* A.B., University of Missouri, 1933; B.S., 1935; M.A., 1937; Ph.D., 1948.

Edward Hirsch, *Assistant Professor of Psychology,* B.A., Brooklyn College, 1965; M.A., Temple University, 1966; Ph.D., Rutgers University, 1971.

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Marjorie Kaufman, *Professor of English,* B.S., Wisconsin State College, 1944; M.A. University of Washington, 1947; Ph.D., University of Minnesota, 1954.

Emile Auguste Langlois, *Associate Professor of French,* Lic.d'Anglais, Sorbonne, 1958; Diplôme d'Etudes Supériéures, 1960 Agrégé de l'Université, 1967; D. de 3e cyc Université de Montpellier, 1969.

William S. McFeely, *Professor of History,* B.A., Amherst, 1952; M.A., Yale, 1962; Ph.D., 1966.

Jacques-Henri Perivier, *Professor of French,* Baccalaureate, St. Joseph, Poitiers France, 1950; Licence-en Droit, University of Paris, 1955; A.M., University of Pennsylvania; Ph.D., 1965.

Harriet Pollatsek, *Associate Professor of Mathematics,* B.A., University of Michiga 1963; M.A., 1964; Ph.D., 1967.

Marilyn Z. Pryor, *Professor of Biological Sciences,* B.S., Madison College, 1956; M.S., Tennessee, 1958; Ph.D., 1961.

Betty N. Quinn, *Professor of Classics,* B.A., Mount Holyoke, 1941; M.A., Bryn Mawr, 1942; Ph.D., 1944.

John Rapoport, *Associate Professor of Economics,* B.A., Dartmouth College, 196 M.A., University of Pennsylvania, 1966; Ph.D., 1970.

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chard S. Robin, *Professor of Philosophy,* B., Harvard, 1948; Ph.D., 1958.

vid Samuel Schwarz, *Assistant Professor Philosophy,* B.A., Ripon College, 1965; Phil., St. Andrews, 1968; Ph.D., Califor- at Berkeley, 1972.

lkeley Smith, Jr., *Professor of Sociology,* A., Yale, 1947; M.A., 1954; Ph.D., 1958.

rtis G. Smith, *Professor of Biological ences,* A.B., Chicago, 1948; Ph.D., 1954.

belle B. Sprague, *Professor of Biological ences,* A.B., Mount Holyoke, 1937; A., 1939; Ph.D., University of Kansas, 53.

n Sudrann, *Professor of English,* B.A., unt Holyoke, 1939; M.A., Columbia iversity, 1940; Ph.D., 1950.

rgaret L. Switten, *Professor of French,* M., Westminster Choir College, 1947; A., Barnard, 1948; M.A., Bryn Mawr, 49; Ph.D., 1952.

n L. Teall, *E. Nevius Rodman Pro- sor of History,* A.B., Yale, 1948; M.A., 50; Ph.D., 1956.

orge V. Tovey, *Professor of Philosophy,* B., Lafayette, 1942; Ph.D., University of wa, 1950.

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y B. Warren, *Assistant Professor of An- opology,* B.A., California at Santa Bar- ra, 1968; M.A., Princeton, 1970; Ph.D., 74.

win S. Weaver, *Professor of Chemistry,* S., Yale, 1954; Ph.D., Cornell, 1959.

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Smith College

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Leonard Berkman, *Assistant Professor of Theater,* B.A., Columbia University, 1960; M.F.A., Yale University, 1963; D.F.A., Yale University, 1970.

H. Robert Burger, III, *Professor of Geology,* B.S., Yale, 1962; A.M., Indiana, 1964; Ph.D., 1966.

C. John Burk, *Professor in the Biological Sciences,* A.B., Miami, Ohio, 1957; M.A., North Carolina, 1959; Ph.D., 1961.

James J. Callahan, *Associate Professor of Mathematics,* B.A., Marist College, 1962; Ph.D., New York University, 1967.

Helen K. Chinoy, *Professor of Theater,* B.A., New York University, 1943; M.A., 1945; Ph.D., Columbia University, 1963.

John M. Connolly, *Assistant Professor of Philosophy,* B.A., Fordham, 1965; B.A. (M.A.), Oxford, 1967; Ph.D., Harvard, 1971.

Allen H. Curran, *Associate Professor of Geology,* B.S., Washington and Lee, 1962; M.S., North Carolina at Chapel Hill, 1965; Ph.D., 1968.

Thomas S. Derr, Jr., *Professor of Religion,* A.B., Harvard, 1953; B.D., Union Theological Seminary, 1956; Ph.D., Columbia University, 1972.

George E. Dimock, Jr., *Professor of Classical Languages and Literatures,* B.A., Yale, 1939; M.A., 1940; Ph.D., 1949

Raymond A. Ducharme, Jr., *Professor of Education,* A.B., Colby, 1953; M.A., Columbia, 1956; Ed.D., 1966.

Lawrence A. Fink, *Professor of Education and Child Study,* B.A., Stanford University, 1951; M.A., Columbia University, 1958; Ed.D., 1964.

George M. Fleck, *Professor of Chemistry,* B.S., Yale, 1956; Ph.D., Wisconsin, 1961.

Raymond H. Giles, Jr., *Associate Professor of Afro-American Studies, and of Education and Child Study,* B.A., Hunter College, 1961; M.A., City University of New York; Ed.D., University of Massachusetts, 1972.

Myron Glazer, *Professor of Sociology,* B.A., City College of New York, 1956; M.A., Rutgers University, 1961; M.A., Princeton University, 1963; Ph.D., 1965.

David A. Haskell, *Associate Professor in the Biological Sciences,* B.Sc., Ohio State, 1951; M.S., Purdue, 1957; Ph.D., 1960.

Kenneth P. Hellman, *Professor of Chemistry,* A.B., Drew, 1956; M.S., Michigan State, 1959; Ph.D., 1962.

Charles Henderson, Jr., *Professor of Classics,* A.B., Davidson, 1942; M.A., North Carolina, 1947; Ph.D., 1955.

Seymour W. Itzkoff, *Professor of Education and Child Study,* B.A., University of Hartford, 1950; M.A., Columbia University, 1956; Ed.D., 1965.

Erna R. Berndt Kelley, *Professor of Hispanic Studies,* B.A., Wisconsin, 1954; M.A., 1955; Ph.D., 1959.

Murray J. Kiteley, *Professor of Philosophy,* B.A., Minnesota, 1950; M.A., 1958; Ph.D., 1959.

Thomas H. Lowry, *Associate Professor of Chemistry,* A.B., Princeton, 1960; Ph.D., Harvard, 1965.

Harriet D. Lyons, *Instructor in Sociology and Anthropology,* B.A., Barnard, 1963; B. Litt., Oxford, 1970.

George F. Mair, *Professor of Economics,* A.B., Princeton, 1943; M.A., 1948; Ph.D., 1957.

Jeanne M. McFarland, *Assistant Professor of Economics,* B.A., University of Arizona, 1962; M.A., University of California at Berkeley, 1970; Ph.D., 1972.

Barbara S. Musgrave, *Professor of Psychology,* B.A., Minnesota, 1954; M.A., 1960; Ph.D., Massachusetts, 1960.

Joaquina Navarro, *Professor of Hispanic Studies,* B.A., Instituto Escuela, Madrid, 1934; M.A., Columbia, 1942; Ph.D., 1954.

Richard F. Olivo, *Assistant Professor in the Biological Sciences,* A.B., Columbia, 1963; A.M., Harvard, 1965; Ph.D., 1969.

Kathryn Pyne Parsons, *Associate Professor of Philosophy,* B.A., Indiana University, 1961; Ph.D., Stanford University, 1968.

Jeanne A. Powell, *Associate Professor of the Biological Sciences,* A.B., Pembroke, 1954; M.A., Bryn Mawr, 1959; Ph.D.,1967.

Philip D. Reid, *Associate Professor of the Biological Sciences,* B.S., Eastern Michigan, 1962; M.A., Missouri, 1964; Ph.D., Massachusetts, 1970.

Donald B. Reutener, Jr., Associate Professor of Psychology, B.A., Oberlin, 1960: M.A., Ohio State, 1967; Ph.D., 1969.

Peter I. Rose, *Sophia Smith Professor of Sociology and Anth pology,* A.B., Syracuse, 1954; M.A., Cornell, 1957; Ph.D., 1959.

Stanley Rothman, *Professor of Government,* B.S.S., City College of New York, 1949; M.A., Brown, 1951; Ph.D., Harvard, 1958.

Alan N. Rudnitsky, *Assistant Professor of Education and Child Study,* B.S., Drexler, 1970; M.Ed., Massachusetts, 1971: Ph.D., Cornell, 1976.

Judith L. Ryan, *Associate Professor of German,* B.A., Sydney University, 1964; Ph.D., University of Münster, Germany, 1970.

Willy Schumann, *Professor of German,* B.A., Southern Methodist, 1952; M.A., 1953; Ph.D., Columbia, 1959.

Waltraut C. Seitter, *Eliza Appleton Haven Professor of Astronomy,* M.A., Smith, 1955; Ph.D., University of Bonn, Germany, 1962. Habilitation, 1965.

Margaret L. Shook, *Associate Professor of English,* A.B., Smith College, 1953; M.A., 1957; Ph.D., University of California, 1966.

Malcolm B.E. Smith, *Associate Professor of Philosophy,* B.A., Virginia Military Institute, 1961; Ph.D., Cornell University, 1969.

J. Diedrick Snoek, *Associate Professor of Psychology,* B.A., Western Reserve University, 1954; M.A., University of Michigan, 1955; Ph.D., 1960.

Milton D. Soffer, *Sophia Smith Professor of Chemistry,* B.S., Arkansas, 1937; A.M., Harvard, 1939; Ph.D., 1942.

A. Thomas Tymoczko, *Assistant Professor of Philosophy,* A.B., Harvard University, 1965; Ph.D., 1972.

Hans R. Vaget, *Associate Professor of German,* M.A., University of Tübingen, 1964; Ph.D., Columbia University, 1969.

Klemens W. von Klemperer, *L. Clark Seelye Professor of History,* M.A., Harvard University, 1940; Ph.D., 1949.

Andrew Zimbalist, *Assistant Professor of Economics,* B.A., Wisconsin, 1969; M.A., Harvard, 1972; Ph.D., 1974.

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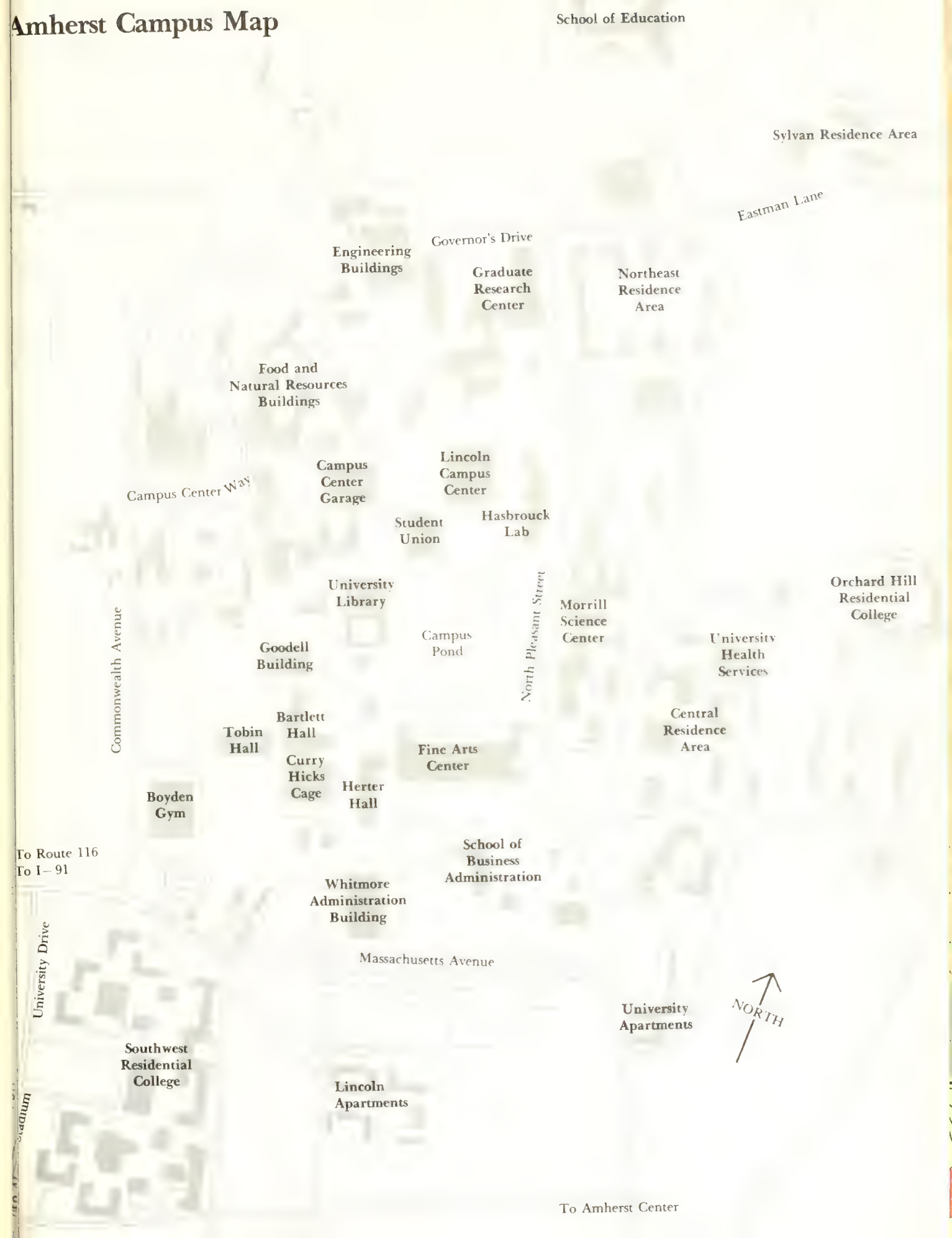

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This catalogue is published with the intention of providing all prospective students and the general public with pertinent information regarding the Stockbridge School of Agriculture. The School reserves the right to make any necessary changes regarding all materials described herein.

The University of Massachusetts is both a State University and a Land Grant College and has been established as such by Acts of Congress and of the Legislature of Massachusetts.

The two-year program at the University of Massachusetts is offered by the Stockbridge School of Agriculture and is accredited through the University by the New England Association of Colleges and Secondary Schools.

The University of Massachusetts at Amherst prohibits discrimination on the basis of race, color, sex, age, religion, national origin or handicap in any aspect of its employment, in the recruitment, admission and treatment of students and in its policies and programs, as required by Federal and State laws and regulations. Inquiries concerning these laws and regulations or their application should be addressed to the Office of the Affirmative Action Coordinator, Chancellor's Office, 375 Whitmore Administration Building.

1978-1980 stockbridge school of agriculture at the university of massachusetts at amherst

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STUDENT ACTIVITIES

Dr. John W. Denison
Director

Miss Iona Mae Reynolds
Associate Director

A Message from the Director

Our School, the Stockbridge School of Agriculture at the University of Massachusetts, is a two-year professional, technical school designed to offer an Associate of Science degree to highly motivated individuals of all ages. It is unique in that most of our faculty also teach at the undergraduate and graduate levels in the four-year school, participate in research and are highly trained professional people.

As part of the University of Massachusetts, our School enjoys the advantages of a large campus and its many fine facilities—libraries, laboratories, gymnasiums—while keeping the close student-faculty relationship possible only in a small school. It has always maintained, and intends to maintain, this relationship which is essential to a proper learning environment and the attainment of quality education.

The goal of our School is to offer our students the most up-to-date and relevant knowledge possible, enabling them to become highly employable in their special fields and to become enlightened, responsible citizens in tomorrow's society.

John W. Denison
Director

Useful Information

The Stockbridge School of Agriculture, founded in 1918, is an integral part of the College of Food and Natural Resources at the University of Massachusetts, Amherst. It offers excellent educational opportunities to highly motivated students who have the initiative to learn and use their knowledge. Today, after the successful completion of course requirements, graduates receive the Associate of Science degree. Stockbridge has over 7,500 alumni, many of whom are now certified arborists, prominent poultry farmers, fruit and vegetable or dairy farmers, superintendents of golf courses, laboratory technicians, managers of restaurants or agricultural businesses and owners of florist shops or nurseries, just to mention a few. The successful careers of graduates are the best proof available as to the value of this kind of concentrated and technical education. Stockbridge can boast of a fine group of students, graduates and professors, some who are well known throughout the United States and the world. It takes quality in the staff, faculty and student body to make a good school, and the Stockbridge School has just that.

PROGRAMS OF STUDY

The Stockbridge School of Agriculture offers the following programs:

- Agricultural Business Management
- Animal Science
- Arboriculture and Park Management
- Floriculture
- Fruit and Vegetable Crops
- Laboratory Animal Technology
- Landscape Operations
- Turf Management

FIELDS OF STUDY *NOT* OFFERED

Our School offers eight programs of study. The following programs, however, are commonly requested but *not* available at Stockbridge: Environmental Technology, Fisheries and Wildlife Biology (Game Wardens), Food Distribution, Food Processing Technology, Forestry (Forest Rangers), Hotel, Restaurant and Travel Administration, Veterinarian's Assistant. Also, we do not offer any summer or evening courses.

INTERVIEWS

Interviews are not part of our admissions procedure. Personal conferences will be scheduled only if the candidate or his/her guidance counselor has a question which cannot be readily answered by correspondence.

GUIDED TOURS

Through the University Guide Service, ARCON, guided tours are available during the regular academic year (except during University vacations) on weekdays from 1:30 to 3:30 p.m., Saturdays from 9:00 a.m. to 12:30 p.m. and Sundays from 1:00 to 3:00 p.m. Special arrangements for campus tours during the academic year may be made by writing to ARCON, University Guide Service, Murray D. Lincoln Campus Center, University of Massachusetts, Amherst, MA 01003, or by telephoning 413-545-0012. Tours originate from the Information Desk, concourse level of the Campus Center.

INSTRUCTION

Our courses are taught by the University staff. In addition to teaching by lecture and discussion, there is a strong emphasis on practical laboratory work. The combined advantages of university instruction and a university plant with all its varied resources are thus made available to our students.

SPECIAL STUDENTS

Our School has a Special Student status for anyone interested in taking one course per semester. If you are interested in attending Stockbridge on a part-time basis, all you have to do is report to the Stockbridge School Office, 110 Stockbridge Hall on the first day of classes for either semester and fill out an application. Admittance to any course is dependent upon the seats available.

APPLICATION AND OTHER FEES

There is a non-refundable Application Fee of $10.00 for Massachusetts residents and $25.00 for non-residents. A $15.00 non-refundable Matriculation Fee is due within 15 days after notification of acceptance. Subsequently, a $30.00 non-refundable Summer Counselling (orientation) fee will become due. For the coming academic year, single Massachusetts residents attending Stockbridge and living on campus will normally incur costs of $2200.00 to $2800.00 per year. This includes tuition and fees, room, board, personal expenses, books, and supplies and the fees noted above.

FRESHMAN ORIENTATION

Every student entering as a freshman in the fall must attend a one-and-one-half day orientation program at a specified time during the summer prior to entrance. The program consists of counselling and pre-registration for courses to be taken during the coming semester and orientation to social and academic opportunities available to Stockbridge students. Each student is assigned a faculty advisor who will help in the selection of courses and planning of a class schedule. On the final day of this period, a special program is held for parents so that they may learn more about Stockbridge and the University. Each freshman attending the summer orientation program will pay a non-refundable, MANDATORY fee of $30.00 to cover the cost of meals, housing and counselling. All students are required to pay for and attend the summer counselling session.

SUMMER PLACEMENT TRAINING

Summer placement training for freshmen is required by most departments. In most cases, students are responsible for finding summer placement jobs that are acceptable to their department and/or academic advisor. Department personnel (including advisors) and the Director will be happy to assist any student unable to find an acceptable job.

Positions should be secured that will enable the students to gain practical experience in a particular field. Students are required to complete the training period without unnecessary absences. Although wage rates vary in different localities, the student may expect to earn a reasonable amount. However, the purpose of the placement job is to gain experience rather than to expect a high monetary return.

Summer placement requirements may be obtained from the advisor who will be responsible for grading the summer placement

report. A student who receives a failing mark on the summer placement report cannot graduate until a satisfactory grade is earned.

Freshmen majoring in Arboriculture and Park Management, Floriculture, Fruit and Vegetable Crops, Landscape Operations and Turf Management must find summer placement jobs to start on or around April 1, which gives them approximately five months of field experience. Departments will help locate and must approve these jobs.

Freshmen majoring in Agricultural Business Management, Animal Science and Laboratory Animal Technology do not leave for summer placement until the last week of May, following their final examinations. These students, therefore, spend about three months in the field. Departments will help locate and must approve these jobs.

ETHNIC DATA

In cooperation with the Massachusetts Commission Against Discrimination, an Affirmative Action Program has been developed to provide information and assistance to minority students in making application for admission.

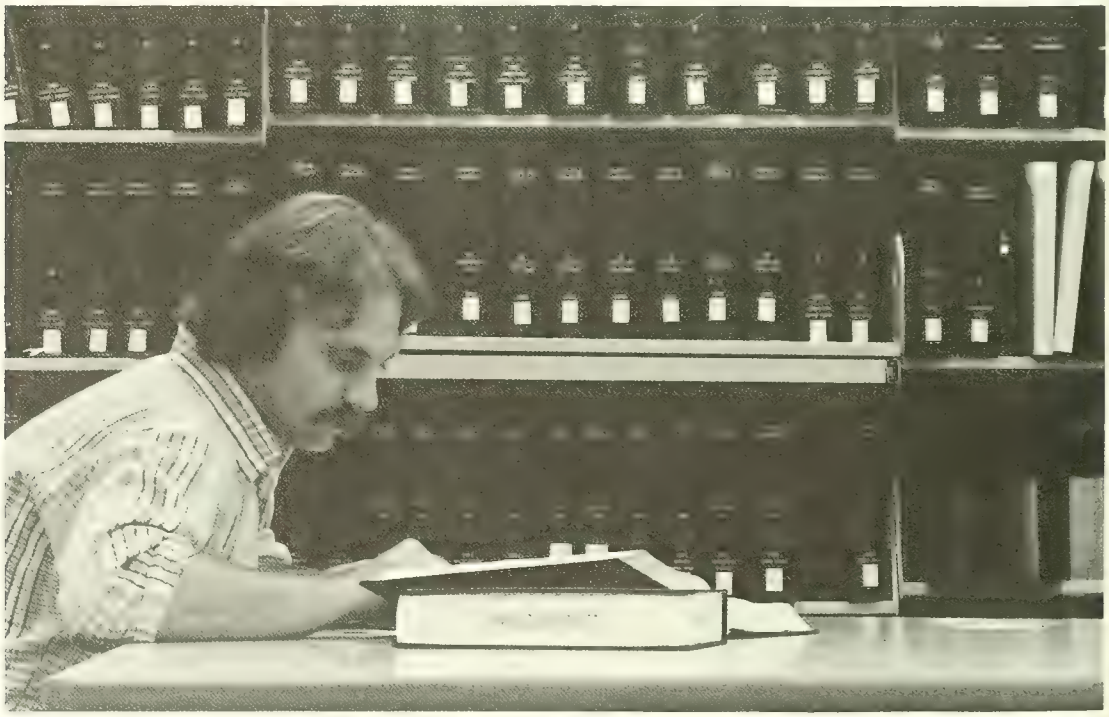
"Minority" individuals are defined in Presidential Executive Order 11246 as including Afro-American, American Indian, Oriental American and Spanish surnamed people.

The University has two special programs, described below, to assist minority applicants:

CCEBS (Committee for the Collegiate Education of Black Students)—Seeks to recruit and accept minority and low-income white students into the University through a special admissions process. The CCEBS student shares all the responsibilities of any other student, but is offered individually focused academic, financial and personal support services, if needed, to experience optimum progress and adjustment within the University.

BCEP (Bilingual Collegiate Education Program)—Designed primarily for Spanish-speaking individuals and similar to the program above.

For more information about these programs, please call 413-545-0222.



FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT

Policy and Procedures

A. On January 1, 1975, President Ford signed into law the Family Educational Rights and Privacy Act (Public Law 93-380). This law was developed to allow present or former students, at educational institutions access to educational records kept on them, as well as basic protections of privacy of their records. The law does not apply to applicants seeking admission to the University. The law applies to "educational records" defined as "records, files, documents, and other materials which . . . contain information directly related to a student" and "are maintained by an educational agency or institution." The law specifically exempts personal records kept by instructional, supervisory, and administrative staff, as long as those records are not accessible or revealed to any other person except a substitute; records of a law enforcement unit; records of employees of an educational institution; and records which are created or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional, and which are created, maintained or used only in connection with the treatment of the student.

The law specifically grants the following rights to access:

1. The right to be provided a list of the types of educational records which are maintained by the institution and which directly relate to students;
2. The right to inspect and review the content of those records;
3. The right to obtain copies of those records, which may be at the expense of the student (but not to exceed the actual cost to the educational institution of reproducing such copies);
4. The right to a response from the institution to a reasonable request for explanations and interpretations of those records;
5. The right to an opportunity for a hearing to challenge the content of those records;
6. If the educational record of a student includes information on more than one student, the right to inspect or review only that part of the material or document which relates to such student.

B. The University develops and maintains several types and varieties of educational records on students. A list of *what types of records are maintained by the University*, where they are kept, what University official has major responsibility for those records, who has access to those records and why, and what it will cost to obtain a copy of those records, has been developed. A copy of the complete list is available for inspection in the following locations:

Admissions Office
Whitmore Administration Building

Financial Aid Office
Whitmore Administration Building

Dean of Students Office
Whitmore Administration Building

Vice Chancellor for Student Affairs Office
Whitmore Administration Building

Vice Chancellor for Academic Affairs Office
Whitmore Administration Building

Undergraduate Registrar
Whitmore Administration Building

Graduate Registrar
Graduate Research Center

Continuing Education Registrar
Hasbrouck Laboratory

Student Development Center
Berkshire House

Southwest Area Director's Office
J. Q. Adams Lobby

Central Area Director's Office
Hills North

Orchard Hill Area Director's Office
Grayson House

Northeast Area Director's Office
Leach House

Sylvan Area Director's Office
Cashin House

Ombudsman's Office
Campus Center

Legal Services Office
Campus Center

Student Senate Office
Student Union

Library, Reference Desk
Main Floor, Library

B.D.I.C.
Goodell Building

University Without Walls
Wysocki House

University Year for Action
Arnold House

CCEBS Office
New Africa House

Center for Outreach Programs
Goodell Building

College of Arts and Sciences
Machmer Hall

Education, Dean's Office
Hills South

Food and Natural Resources,
Dean's Office
Stockbridge Hall

Humanities and Fine Arts, Dean's Office
South College

Natural Sciences and Mathematics, Dean's Office
South College

Social and Behavioral Sciences, Dean's Office
South College

Business Administration, Dean's Office
School of Business Administration

A complete copy of the HEW regulations and the University of Massachusetts/Amherst procedures and policies regarding the Family Educational Rights and Privacy Act is available for inspection at any one of the offices listed above.

C. The institution maintains records in many mediums, including but not limited to: handwriting, print, tapes, microfilm, and microfiche.

D. Access to Records: Students can request to see any of their educational records covered and defined by the Family Educational Rights and Privacy Act. The request to see such records should be made at the specific department which maintains those records.

If possible, a student will be allowed access to the records immediately. In any case, the department must allow access to the file within 45 calendar days.

E. Procedures to Follow to Access a Record:

1. A request by a student or agency to inspect a record shall be made in writing to the institutional office which maintains the record. Each office maintaining records has its own procedures to receive and process such requests.
2. Every office is obligated to inform the student when the requested record will be made available. (This date must be no more than 45 days after the receipt of the request.)
3. Every office is obligated to tell a student who has accessed his/her record and why.
4. Every office is obligated to maintain a record of the persons or agencies who have had access to the record.
5. Students are obligated to properly identify themselves (student I.D.) before being shown their records.
6. Students are obligated not to interfere with the operation of the office in which the record is being maintained.
7. Students are obligated to examine the record during reasonable hours at the place the record is maintained.
8. Prior to giving a student his/her record for examination all confidential data will be removed.
9. The examination of the record shall be supervised.
10. Copies of records shall be transmitted to the student upon payment of the established fee for issuing such copies.

F. Reviewing Educational Records: Educational records will be reviewed by the department head, or his/her representative, periodically, and also at the request of the student. If the student wishes something inappropriate removed from, or changed in the record, and this cannot be resolved at the department level, the student has a right to an appeal through the University's appeal process.

The academic record (transcript) of a student is maintained in perpetuity by the institution. No other record is officially designed as a permanent record and will be expunged in accordance with the laws of the State, or at the discretion of the custodian of the record.

G. Procedures for Challenging the Content of Educational Records: After reviewing a record, a student has a right to challenge the contents of the record as being inaccurate, misleading or otherwise in violation of the privacy or other rights of the student. A student may not challenge the correctness of a grade which has been assigned to his/her performance in a course but may challenge the accuracy of the recording of the grade.

1. Upon deciding that some aspect of his or her record is inappropriate, the student shall so inform the designated person in the office where his or her records are maintained and shall attempt to resolve the problem through informal discussions with such person and the person in charge of that office.
2. If no agreement is reached through informal discussions, the student may submit in writing to the institutional director of the Family Educational Rights and Privacy Act, a request for a hearing in order to challenge the contents of the record.

H. Hearing and Appeal Procedures: A request for a formal hearing must be filed in writing with the Coordinator for the implementation of the Family Educational Rights and Privacy Act on the Amherst campus:

Michael A. West, Chancellor's Office
Whitmore Administration Building

The specific challenge to the content of the student's record should be clearly articulated in the complaint. The complaint must be filed within 45 calendar days after the student has requested a change to his/her record.

Upon receipt of a written request for a formal hearing, the Coordinator of the Family Educational Rights and Privacy Act shall within five calendar days:

1. Notify each party involved, in writing, that a request for a formal hearing has been requested; and provide to each party involved, the substance of the complaint;
2. Appoint at least three officials of the University who do not have a direct interest in the outcome of the challenge, to be hearing officers, one of whom shall be designated as the Chairperson of the hearing panel.
3. It is the responsibility of the Chairperson of the hearing panel to:
   a. Conduct a hearing on the challenge within 21 calendar days following the request for the hearing;
   b. Allow the student a full and fair opportunity to present evidence relevant to the context of his/her educational records;
   c. Report to the Family Educational Rights and Privacy Act Coordinator, a written decision of the hearing panel, within 21 calendar days of the conclusion of the hearing.

   The campus Family Educational Rights and Privacy Act Coordinator shall further:
   a. Provide to the student and departmental representative involved in the challenge, a copy of the written decision of the hearing panel;
   b. Secure from a department head, when appropriate, written verification that the decision of the hearing panel has been carried out.

I. Directory and Public Information: The University defines directory information as a student's name, local address, home address, major, and local telephone number. This information may be printed annually in the student telephone directory.

The University defines public information as the above directory information, as well as date and place of birth; acknowledgment of a student's participation in officially recognized activities and sports, weight and height of

members of athletic teams, date(s) of attendance, degrees, certificates, awards received, and the most recent previous educational agency or institution attended by the student, and the dollar amount of money earned on the state or state trust fund payroll.

The University will make public some or all of this information, usually in the student telephone directory, unless the student specifically requests in writing that his/her prior consent be obtained. Requests by students to suppress from public distribution the above-mentioned information are to be made annually.

J. Other Rights and Requirements of this Legislation: In addition to the above, the law sets forth other rights and requirements regarding educational records maintained on students:

1. The University cannot require students to waive any rights granted under this legislation, as a condition of admission, receipt of financial aid, or receipt of any other services or benefits.

2. Parents' financial records and related parental financial information shall not be released to students. Any institutional office maintaining such records shall either store such records in a file separate from records subject to review or conspicuously stamp such records "CONFIDENTIAL—NOT TO BE RELEASED."

   Confidential evaluations and recommendations of students placed in education records prior to January 1, 1975 need not be released to students. All other education records of a particular student shall be open for inspection by that student unless access is restricted as follows:

   A student may waive his or her right of access to evaluations and recommendations submitted on or after January 1, 1975, provided however, that the student must, upon request, be notified of the name of each person who has submitted such a confidential evaluation or recommendation; such evaluations and recommendations to be used only for the purpose intended; and a waiver may not be required as a precondition of admission to the institution or receipt from the institution of financial aid or any other services or benefits.

3. The University may not permit access to or release of a student's educational records, or personally identifiable information contained therein (other than directory and public information), to third parties, without the student's consent, except to the following:
   a. Other University officials who have a legitimate educational interest in a student's record;
   b. Authorized representatives of the Comptroller General of the United States, the Secretary of HEW, the Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, or State Educational Authorities;
   c. In connection with a student's application for, or receipt of financial aid;
   d. State and local officials to which such information is specifically required under state statutes;
   e. Organizations conducting studies for, or on behalf of, educational institutions for the purpose of developing, validating, or administering predictive tests, student aid programs, and improving instruction, provided that the identity of students is not revealed to other than representatives of such organizations;
   f. Recognized accrediting organizations carrying out their accrediting functions;
   g. Parents of a student who is dependent upon such parents for Federal Income Tax purposes;
   h. In compliance with judicial order, or pursuant to any lawfully issued subpoena, upon condition that the student is notified of all such orders or subpoenas in advance of compliance therewith; and,
   i. In connection with an emergency situation, if the knowledge of such information is necessary to protect the health or safety of a student or other persons.

4. The University must maintain a record, to be kept with the educational records of each student, which will indicate all parties, other than those specified above, which have requested or obtained access to a student's record, and the legitimate interest that such parties have in obtaining such information. This record will be available only to the student, the University personnel responsible for the maintenance of the records, and persons and organizations listed in #3 above.

5. Third parties may not receive information from student's educational records (other than directory and public information), unless and until a student requests in writing that these records be released. Records released to any organization, agency, or individual shall be transmitted with a letter informing the recipient that such information is to be used only by those individuals directly involved in the deliberations warranting the request. In addition, the recipient shall be notified in writing that if compliance with this requirement is not acceptable all records shall be returned, unused, to the institution.

6. The University must make public notice of the categories which it determines to be directory information, and allow the student a reasonable period of time to inform the University that any or all of the information designated should not be released without the student's consent.

7. Complaints regarding violations of this act, or its regulations, may be submitted in writing to Mr. Thomas S. McFee, Room 5660, Department of HEW, 330 Independence Avenue SW, Washington, DC 20201 (202-245-7488). Complaints must be received no later than 180 days from the date of the alleged violations

K. These guidelines will be summarized annually in a publication of the institution.

NEW ENGLAND REGIONAL STUDENT PROGRAM

The Stockbridge School is included in the services of the New England Regional Student Program. This permits students from the other

five New England States to attend Stockbridge at the in-state tuition rate provided their state university does not offer a two-year program in their field of interest. Qualifying applicants must be sure to identify themselves clearly on their application as applying under the Regional Student Program.

The states and programs involved in the New England Regional Student Program are:

Major:	*Currently Offered to Students from:*
Agricultural Business Management	Connecticut Rhode Island Vermont
Animal Science	Rhode Island Vermont
Arboriculture and Park Management	Connecticut Maine New Hampshire Rhode Island Vermont
Floriculture	Maine Rhode Island Vermont
Fruit and Vegetable Crops	Maine New Hampshire Rhode Island Vermont
Laboratory Animal Technology	Connecticut New Hampshire Rhode Island Vermont
Landscape Operations	New Hampshire Rhode Island Vermont
Turf Management	Connecticut New Hampshire Rhode Island Vermont

EMPLOYMENT AFTER GRADUATION

Our School does not guarantee employment following graduation to any of our students. Through the Placement Office and through departmental sources, however, we have an opportunity to recommend students for a large number of positions. Opportunities for trained men and women, especially those with experience, are good.

Students desiring a recommendation from Stockbridge must meet the following conditions:

1) They must be of good character.
2) Their previous record must be good.
3) Their work in all courses must be satisfactory.

Students who have not previously had a considerable amount of practical experience cannot, as a rule, be recommended for positions of responsibility. This is especially true of the better positions for which managers or superintendents are wanted.

RESIDENCE STATUS

These rules and regulations shall apply to the classification of students at the Stockbridge School of Agriculture at the University of Massachusetts as Massachusetts or non-Massachusetts students for tuition purposes.

SECTION 1. DEFINITIONS

1) ACADEMIC PERIOD—A term or semester in an academic year or a summer session, as prescribed by the Board of Trustees or under their authority.

2) CONTINUOUS ATTENDANCE—Enrollment at the Stockbridge School for the normal academic year in each calendar year, or the appropriate portion or portions of such academic year as prescribed by the Board of Trustees or under their authority.

3) DOMICILE—A person's true, fixed and permanent home and place of habitation, where he intends to remain permanently or for an indefinite time.

4) EMANCIPATED PERSON—A person (a) who has attained the age of 18 years, or (b) if under 18 years of age, whose parents have entirely surrendered the right to the care, custody and earnings of such person and who no longer are under any legal obligation to support or maintain such person, or (c) a person who has no parent. If none of the aforesaid definitions apply, said person shall be deemed an "unemancipated person."

5) HIS—He, him and his shall apply to the female as well as the male gender.

6) PARENT—With respect to a person (in the case of an adopted person, inserting the adjective "adoptive" before the words "father" and "mother" wherever used):

a) the person's father;
b) if the person's father dies, either the legal guardian or if no legal guardian is appointed, the person's mother;
c) if neither the father nor mother is living and no legal guardian is appointed, the person who then stands *in loco parentis* to the person;
d) if the father and mother are divorced, the person to whom legal custody of the person is awarded;
e) if the father and mother are divorced, separated or unmarried and legal custody has not been awarded, the father or the mother, as the case may be, with whom the person lives or, if he lives with neither and the father is living, the father.

7) RESIDENCE—A place of habitation.

SECTION 2. RULES FOR DETERMINATION OF DOMICILE

1) Domicile is not acquired by mere physical presence in Massachusetts while the person is carrying on a course of study at the Stockbridge School or while the person is engaged in employment for a specified term unless Massachusetts is otherwise the domicile of the person.

2) Domicile at birth may be changed thereafter, by action of the parent in the case of an unemancipated person or by action of the person himself in the case of an emancipated person.

3) A person claiming Massachusetts as his domicile shall furnish evidence to support such claim. The burden of proof in all cases is upon the person making the claim. The following shall be of probative value, although not necessarily conclusive, in support of a claim of domicile within Massachusetts:

a) Birth certificate;
b) Motor vehicle registration and or operator's license;
c) Voting or registration for voting;
d) Certified copies of Federal and State Income Tax returns;
e) Property ownership;
f) Continuous physical presence in Massachusetts during periods when not enrolled as a student;
g) Permanent employment in a position not normally filled by a student;
h) Reliance on Massachusetts sources for financial support;
i) Former domicile in Massachusetts and maintenance of significant connections therein while absent;
j) Domicile of parent within Massachusetts.

Evidence submitted in support of an assertion of domicile or of parental relationship shall be in such form as the Treasurer of the University or his designee may require. Copies of official records or documents shall be authenticated by a proper officer. Assertions of fact made other than by an authenticated copy of an official record shall be certified as to accuracy and completeness by the person submitting the same.

SECTION 3. PROOF OF PARENTAL RELATIONSHIP

A person asserting that he is an emancipated person shall furnish evidence to support such assertion. Such evidence may include:

a) Birth certificate or any other legal document that shows place and date of birth;
b) Legal guardianship papers—court appointment and termination must be submitted;
c) Statements of the person, his parent(s), guardian(s), or others certifying no financial support;
d) Certified copies of Federal and State Income Tax returns filed by the person and his parent(s);
e) Where none of the foregoing can be provided, an affidavit of the emancipated person in explanation thereof and stating fully the grounds supporting the claim of emancipation.

SECTION 4. RULES FOR CLASSIFICATION

1) Every emancipated person applying for admission to the Stockbridge School, who has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the date of his application and has established a domicile in Massachusetts, shall be eligible for classification as a Massachusetts student for tuition purposes.

2) Every unemancipated person applying for admission to the Stockbridge School, whose parent has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the date of application and has established a domicile in Massachusetts, shall be eligible for classification as a Massachusetts student for tuition purposes.

3) Every emancipated person seeking a change in classification, who has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the beginning date of the academic period for which he registers and has established a domicile in Massachusetts, shall be eligible for classification as a Massachusetts student for tuition purposes for such academic period.

4) Every unemancipated person seeking a change in classification, whose parent has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the beginning date of the academic period for which the person registers and has established a domicile in Massachusetts, shall be eligible for classification as a Massachusetts student for tuition purposes for such academic period.

5) A person having his domicile elsewhere than in Massachusetts shall not be eligible for classification as a Massachusetts student for tuition purposes except as herein provided.

6) Any person who is registered at the Stockbridge School as a Massachusetts student shall be eligible for continued classification as a Massachusetts student for tuition purposes (until attainment of the degree for which he is then enrolled) during continuous attendance at such institution.

7) A member of the Armed Forces of the United States and his spouse and unemancipated children shall, while he is on active duty and stationed in the Commonwealth of Massachusetts, be eligible for classification as Massachusetts students for tuition purposes.

SECTION 5. CHANGE IN CLASSIFICATION

No application for change to classification as a Massachusetts student for tuition purposes submitted later than the first day of classes shall affect a classification during the then current academic period.

SECTION 6. PENALTY FOR MISREPRESENTATIONS

Misrepresentation in or omission from any evidence submitted of any fact which if correctly or completely stated would be grounds to deny classification as a Massachusetts student for tuition purposes shall be cause for exclusion or expulsion from or other disciplinary action by the University.

SECTION 7. APPEALS

Appeal from a determination denying classification as a Massachusetts student shall be initiated by filing a written request with the Treasurer of the University or his designee specifying the particular grounds for said request.

SECTION 8. MISCELLANEOUS

Nothing contained herein shall be construed as limiting or prohibiting the authority of the Board of Trustees to waive or reduce tuition charges.

Entrance Requirements

Our School has two separate admission seasons—Fall and Spring. All applicants are considered for Fall admissions and only transfer students (applying in certain majors) who have at least 15 acceptable college credits are considered for Spring admissions. *We do not accept first semester freshmen in January.*

FRESHMAN APPLICANTS
(FALL ADMISSIONS)
If you wish to apply to Stockbridge, you must be a graduate of an accredited high school or have a high school equivalency certificate and have a good preparation in English, mathematics and science.

We make a particular effort to select applicants who have demonstrated strong, sincere motivation in their field of interest. This may be demonstrated by work experience and/or the type of courses taken in high school or at other educational institutions. We would like to encourage applicants who are strongly motivated with a background in vocational agriculture to apply, as well as highly motivated veterans who may not have had college preparatory courses.

WHEN TO APPLY
Freshman Deadline Date: February 1 (for in-state, out-of-state and foreign applicants).

You must mail your COMPLETE application to the Admissions Office, Whitmore Building, University of Massachusetts, Amherst, MA 01003 immediately following the first marking period of your senior year of high school, usually around the last week of November. If you have graduated from high school, you can mail your application any time after November 1. You must, however, have your application in not later than February 1. All applicants will receive notification of our decisions not later than April 30.

HOW TO APPLY
You can pick up an application blank in any high school guidance office or send a request to our office, Room 110 Stockbridge Hall, University of Massachusetts, Amherst, MA 01003. Please print or type all the information requested. Please be sure to check only ONE program that you wish to study. You must also be sure to explain in detail any work experiences related to your selected program of study and why you wish to study in that particular program. Then, either you or your guidance counselor, attach the following information to your application:

1. Application Fee ($10.00 for in-state students and $25.00 for out-of-state students).
2. Proof of Residency (in-state and out-of-state students are required to complete this form).
3. Results of the Scholastic Aptitude Test (SATs) which is given by the College Entrance Examination Board (you are exempt if you are a veteran or have been out of high school more than five years).
4. High school transcript or Equivalency Certificate.
5. A recommendation from either your guidance counselor, teacher/professor, clergyman or employer.
6. College transcript (if you have attended or are presently attending college).

You must submit all of the above materials to:

Admissions Office
Whitmore Building
University of Massachusetts
Amherst, MA 01003

Please be sure that your application is complete—if not, no action will be taken regarding your application.

TRANSFER APPLICANTS
(SPRING ADMISSIONS)
If you are a transfer student wishing to apply to Stockbridge, you must have already earned or be presently earning at least 15 transferable college credits. Your grade average must be at least a C or better. Your courses must relate closely to the courses in your chosen major. The following selection of courses are most often transferable: Accounting, Biology, Botany, Chemistry, Economics, English Composition, Mathematics, Physics and Psychology. Generally, transfer students offering one full semester of acceptable transfer credits will graduate in three semesters.

IMPORTANT NOTE—There are programs in our School that do not accept transfer students at any time (unless the student has earned credits in courses *nearly identical to those required by the department offering these programs).* The following are programs of study that do not generally accept transfer students: Arboriculture and Park Management, Floriculture, Fruit and Vegetable Crops, Landscape Operations and Turf Management. All our other programs of study do accept transfer students who have 15 or more acceptable transfer credits.

WHEN TO APPLY
Transfer Deadline Date: November 1 (for in-state, out-of-state, and foreign applicants).

You must mail your COMPLETE application to the Admissions Office, Whitmore Building, University of Massachusetts, Amherst, MA 01003 by November 1 at the latest. Any college transcripts not attached to your application should be sent directly to the Admissions Office in the Whitmore Building. All applicants will be notified of our decisions not later than January 20.

HOW TO APPLY
If you are a transfer applicant, please follow the general procedures described for freshman applicants. You also will need to go to your college transfer counselor for his/her recommendations and signature. If you are presently attending college, please make a list of the courses you are taking and estimate what grades you expect to receive when the semester ends. You can then attach this list to your transcript of credits already earned. *Please be sure that your application is complete—if not, no action will be taken regarding your application.*

APPLICANTS WHO HAVE PREVIOUSLY APPLIED FOR ADMISSION, BUT NEVER ATTENDED STOCKBRIDGE
If you applied for admission to Stockbridge within the past three years and did not attend Stockbridge, it is NOT necessary to file a new application. All you have to do is write to us and request that we re-activate your previous application (by the stated deadline). In your letter, please be sure to state what you have been doing in the interim.

Description of Programs

You are required to select *ONE* of the following programs of study. Since it is not possible to transfer from one major to another in Stockbridge, you must choose the major which comes closest to your interests, abilities and future goals. A careful study of the curricula and job opportunities listed for each program will help to insure a proper selection. If any additional information or advice is needed, please feel free to consult the Director of the Stockbridge School.

AGRICULTURAL BUSINESS MANAGEMENT

(in Department of Food and Resource Economics)

Chairman of Department: Professor John H. Foster. Professors Crossmon, Leed; Associate Professors Callahan, Knapp, Lee, Marion, Spindler.

The two-year program in the Department of Food and Resource Economics is designed to provide students with basic business management training for the agricultural industry and related fields. Students may elect 18 credit hours of course work in other departments, thereby providing individuals with an opportunity to develop flexibility in academic training.

JOB OPPORTUNITIES

Employment opportunities leading to supervisory and management positions are available in agricultural business and related firms such as Feed, Seed, Fertilizer, Chemical and Farm Supply Manufacturers and Distributors; Credit Firms; Farm Machinery Dealers; Food Processors and Distributors of Fruit, Vegetable, Dairy, Poultry, Livestock and Nursery Products.

AGRICULTURAL BUSINESS MANAGEMENT

FIRST YEAR

First Semester	*Credits*
Food and Resource Economics S01 Principles of Economics	3
Food and Resource Economics S07 Introduction to Social Behavior	3
Food and Resource Economics S13 Business Management	3
Food and Resource Economics S31 Seminar	1
Mathematics S03 or S04	2 or 3
Rhetoric S01 English Composition	3

Second Semester	*Credits*
Fifteen Weeks Resident Instruction followed by Three Months Placement Training	
Food and Resource Economics S03 Accounting Principles	4
Food and Resource Economics S08 Business Law	3
Food and Resource Economics S24 Marketing Management	3
Electives*	6

SECOND YEAR

First Semester	*Credits*
Food and Resource Economics S05 Managerial Accounting	3
Food and Resource Economics S14 Retail Operations and Management	3
Food and Resource Economics S17 Personnel Supervision	3
Food and Resource Economics S99 Placement Training	0
Electives*	6

Second Semester	*Credits*
Food and Resource Economics S02 World's Food Supply	3
Food and Resource Economics S15 Agricultural Business Management	3
Food and Resource Economics S36 Taxation	3
Electives*	6

*Only one course outside the College of Food and Natural Resources may be elected in any one semester.

ANIMAL SCIENCE

(in Department of Veterinary and Animal Sciences)

Head of Department: Professor Thomas W. Fox. Professors Black, Colby, Grover, Harris, Stern; Associate Professors Borton, Denison, Fenner, Lyford; Assistant Professors Duby, Marcum, McConnell, Reynolds; Lecturers Carlson, Donohue.

A major program of study in the Department of Veterinary and Animal Sciences in the Stockbridge School includes Beef Cattle, Dairy Cattle, Laboratory Animals, Light Horses, Poultry, Sheep and Swine.

OBJECTIVES

The curriculum in Animal Science is designed to prepare students for careers in the broad field of the animal, dairy and poultry sciences: (1) by providing the students with an understanding of the fundamental biological and biochemical principles involved in the development of more efficient animals and birds, and more acceptable and useful animal products; (2) by presenting an opportunity in the various laboratories to apply those principles in selecting, breeding, feeding and managing the different classes of livestock, poultry and laboratory animals; (3) by supplementing the major course offerings with supporting courses in Entomology, Food and Agricultural Engineering, Food and Resource Economics, Food Science and Nutrition, Mathematics, Microbiology, Plant and Soil Sciences and Veterinary Sciences and; (4) by improving communication skills through courses in Rhetoric.

UNIVERSITY FARMS, LIVESTOCK AND POULTRY FACILITIES

The University animal operations include land and buildings on the west side of campus, the Tillson Farm on the east side of campus and a new dairy and livestock complex at South Deerfield. The campus' large animal facilities are used for undergraduate instructional use and graduate research with dairy cattle, beef cattle, sheep, swine and horses. The Poultry Research and Teaching Center at

Tillson Farm provides scientifically oriented facilities for instruction and research with chickens, turkeys, ducks and quail.

These facilities at Tillson Farm and South Deerfield plus classroom and laboratories on campus provide the department and students with modern equipment for all types of laboratory work.

JOB OPPORTUNITIES

In recent years, the demand for graduates of the Department of Veterinary and Animal Sciences has exceeded the supply by a substantial margin in all areas. The demand continues strong for foremen, herdsmen and managers of dairy, livestock and poultry production enterprises as well as for technicians in artificial breeding units, dairy herd improvement associations and animal research laboratories.

ANIMAL SCIENCE
FIRST YEAR

First Semester	*Credits*
Animal Science S01 Introductory Animal Science	3
Chemistry S17 Introductory Chemistry	3
Food and Resource Economics S01 Principles of Economics	3
Food and Resource Economics S07 Introduction to Social Behavior	3
Mathematics S03 or S04	2 or 3
Plant and Soil Sciences S33 Soil Management	3

Second Semester	*Credits*
Fifteen Weeks Resident Instruction followed by Three Months Placement Training (OPTIONAL)	
Animal Science S02 Principles of Livestock Feeding	3
Animal Science S08 Anatomy and Physiology	3
Animal Science S10 Poultry Management	3
Food and Agricultural Engineering S05 Structures and Environment	3
Rhetoric S01 English Composition	3

SECOND YEAR

First Semester	*Credits*
Animal Science S03 Animal Breeding	4
Animal Science S07 Marketing Animal Products	3
Animal Science S17 Animal Diseases	3
Animal Science S99 (OPTIONAL) Placement Training	0
Food and Resource Economics S15 Agricultural Business Management	3
Elective—1 of the following:	
Animal Science S15 Horse Management	3
Food and Agricultural Engineering S03 Machinery	3

Second Semester	*Credits*
Animal Science S04 Livestock Production	4
Animal Science S06 Dairy Cattle Management	4
Animal Science S09 Animal Products	3
Entomology S04 Insects and Related Forms	2
Plant and Soil Sciences S36 Field Crops	3
Elective—1 of the following:	
Food and Resource Economics S08 Business Law	3
Food and Resource Economics S10 Part-time Agriculture	3
Plant and Soil Sciences S34 Plant Nutrients	2

This associate degree program is not appropriate *for those students interested in a pre-veterinary program and who eventually plan to attend a professional school of veterinary medicine. Pre-veterinary students should enroll in a four-year curriculum.*

ARBORICULTURE AND PARK MANAGEMENT

Head of Department: Professor E. Bruce MacDougall. Professor King; Assistant Professors Bumgardner, Olson; Technical Assistant Houston.

This program permits a student to enter into two closely related and expanding professions.

ARBORICULTURE

Arboriculture, the care of shade and ornamental trees, is becoming more important in Massachusetts as the citizens realize the necessity of trees in everyday life. It includes tree planting; large tree moving; diagnosis and treatment of tree disease, defects and mechanical injuries; identification and control of tree insect pests; fertilizing; pruning and repair of storm or otherwise damaged trees and; removal of dead or undesirable trees.

This growing appreciation of the value of trees has led to the development of organizations to supply tree maintenance service. These firms desire trained people. All Massachusetts towns are required to elect tree wardens. At present, there are over three thousand people actively engaged in municipal and private tree care in Massachusetts and the future is almost unlimited on a national basis. Nationally, over a billion dollars is spent annually on shade and ornamental trees to supply these needs.

The University offered the first course in the country on shade trees in 1895, and now offers one of the few complete two-year courses in arboriculture in the United States.

Annually in March, a one-week conference for tree wardens, arborists and utility people is held. The programs of the conferences are of interest to students in this course. The University campus of 700 acres has a wide variety of trees of all ages with which the student becomes acquainted, and serves as a laboratory for problems similar to those one will meet in practice. The research laboratory in shade tree diseases for the state is also located on the campus.

The Massachusetts Arborists Association and the Massachusetts Tree Wardens and Foresters Associations have approved this course as a basic training program.

PARK MANAGEMENT

The student will be prepared for various aspects of park management, and other phases of land use. Park formation and expansion to meet public needs is a growing field and there is need for trained people. Many phases of Park Management and Arboriculture are not only related but interchangeable.

GENERAL

Field trips will be required during the two years at an estimated cost of $40.00. A placement training period is required between the freshman and senior years.

JOB OPPORTUNITIES

Jobs suited to graduates in this program include operators, foremen and salesmen for arboriculture firms, utility line clearance foremen, deputy tree wardens or tree wardens in towns and cities, tree care in estates, parks, state highways, turnpike authorities, college campuses or grounds of public institutions, or developing one's own service organization for the practice of arboriculture.

The phase of land use known as Park Management offers numerous opportunities with municipal, county and state groups dealing with parks. Many town and city governments are combining Park and Tree Departments where personnel are needed who have an understanding of Arboriculture and Park Management.

ARBORICULTURE AND PARK MANAGEMENT

FIRST YEAR

First Semester	*Credits*
Arboriculture and Park Management S01 Principles and Practices	4
Landscape Operations S01 Plant Materials	4
Mathematics S03 or S04	2 or 3
Plant and Soil Sciences S01 Introductory Botany	4
Plant and Soil Sciences S33 Soil Management	4
Plant and Soil Sciences S41 Basic Factors, Construction and Maintenance of Fine Turf Areas	4
Electives: None	0

Second Semester	*Credits*
Eight Weeks Resident Instruction followed by Five Months Placement Training	
Arboriculture and Park Management S02 Principles and Practices	2
Arboriculture and Park Management S04 Recreation/Open Space Survey	2
Entomology S04 Insects and Related Forms	2
Landscape Operations S02 Plant Materials	2
Plant and Soil Sciences S14 Plant Propagation	2
Plant Pathology S02 Plant Diseases	2
Electives: None	0

SECOND YEAR

First Semester	*Credits*
Arboriculture and Park Management S07 Tree and Park Problems *OR*	3
Arboriculture and Park Management S09 Park Organization and Administration	3
Arboriculture and Park Management S99 Placement Training	4
Entomology S05 Economic Entomology	3
Forestry S01 Forest Land Management	4
Landscape Operations S07 Topographical Mapping	3
Plant Pathology S03 Shade Tree Diseases	3
Electives—2 of the following	
Food and Resource Economics S07 Introduction to Social Behavior	3
Food and Resource Economics S13 Business Management	3
Rhetoric S01 English Composition	3

Second Semester	*Credits*
Arboriculture and Park Management S08 Utilities and Tree Laws *OR*	3
Arboriculture and Park Management S12 Park Management and Operation	3
Landscape Operations S08 Grading and Construction	3
Plant and Soil Sciences S16 Herbicides	1
Rhetoric S01 English Composition	3
Electives:	
Food and Agricultural Engineering S07 Structures and Utilities	3
Plant and Soil Sciences S04B Orchard Pruning	3
Natural Resource Studies 100 Conservation of Natural Resources	3

All Arboriculture and Park Management students must have successfully completed 64 credits in order to graduate (this includes 60 credits AND summer placement)

FLORICULTURE
(in Department of Plant and Soil Sciences)

Head of Department: Professor Allen V. Barker. Professors Baker, Boicourt, Bramlage, Drake, Havis, Lord, Marsh, Maynard, Southwick, Troll, Vengris, Zak; Associate Professors Craker, Goddard, Greene, Jennings, Rosenau; Assistant Professor Anderson; Instructor Tristan.

The production and marketing of flowers is a major industry in Massachusetts.

Excellent facilities for instruction are available in commercial-type greenhouses and well-equipped laboratories. In addition, a number of nearby commercial operations are utilized to provide the student with practical information on operation and management problems.

The courses offered emphasize the basic principles of plant growth which underlie sound cultural practices and the economic principles which bear upon marketing procedures and the business aspects of the specialized interest of the student.

JOB OPPORTUNITIES

Excellent job opportunities for graduates are available as skilled workers in commercial greenhouses, arboretums, and educational garden centers as wholesale and retail florists; as salesmen for florist and home garden suppliers; as sales agents or operators of commercial garden centers and, in many instances, the opportunity to start in business for themselves.

FLORICULTURE

FIRST YEAR

First Semester	*Credits*
Food and Resource Economics S01 Principles of Economics	3
Landscape Operations S03 Tree and Shrub Identification	3
Plant and Soil Sciences S01 Introductory Botany	4
Plant and Soil Sciences S03 Greenhouse Management	4
Plant and Soil Sciences S33 Soil Management	4

Second Semester	*Credits*
Eight Weeks Resident Instruction followed by Five Months Placement Training	
Entomology S04 Insects and Related Forms	2
Landscape Operations S04 Landscape Maintenance	1
Plant and Soil Sciences S02 Plant Science	2
Plant and Soil Sciences S08 Bedding Plants	2
Plant and Soil Sciences S10 Foliage Plants	2
Plant and Soil Sciences S34 Plant Nutrients	2

SECOND YEAR

First Semester	*Credits*
Food and Agricultural Engineering S12 Plant and Animal Environment Engineering	3
Food and Resource Economics S13 Business Management	3
Plant and Soil Sciences S11 Commercial Floriculture	3
Plant and Soil Sciences S15 Plant Propagation	3
Plant and Soil Sciences S99 Placement Training	3
Electives—1 or 2 of the following:	
Entomology S05 Economic Entomology	3
Food and Resource Economics S07 Introduction to Social Behavior	3
Plant and Soil Sciences S13 Floral Design	3
Rhetoric S01 English Composition	3

Second Semester	*Credits*
Plant and Soil Sciences S20 Herbaceous Perennial and Annual Plants	3
Plant and Soil Sciences S22 Floriculture Literature and Problems	2
Plant and Soil Sciences S24 Commercial Floriculture	3
Plant Pathology S04 Diseases of Ornamentals	3
Electives—2 of the following:	
Food and Agricultural Engineering S06 Plant Growth Structures	3
Food and Resource Economics S08 Business Law	3
Mathematics S04 Elementary College Algebra	3
Rhetoric S01 English Composition	3

FRUIT AND VEGETABLE CROPS
(in Department of Plant and Soil Sciences)

Head of Department: Professor Allen V. Barker. Professors Baker, Boicourt, Bramlage, Drake, Havis, Lord, Marsh, Maynard, Southwick, Troll, Vengris, Zak; Associate Professors Craker, Goddard, Greene, Jennings, Rosenau; Assistant Professor Anderson; Instructor Tristan.

In Massachusetts, the fruit and vegetable crops industries are major horticultural production and marketing enterprises.

Excellent facilities for instruction are available in commercial-type greenhouses and well-equipped laboratories. Adequate land and modern equipment are available at the Horticultural Research Center Farm in Belchertown, the South Deerfield Farm and the University campus. In addition, a number of nearby commercial operations are utilized in providing the student with practical information on operation and management problems.

The courses offered emphasize the basic principles of plant growth which underlie sound cultural practices and the economic factors which bear upon the marketing procedures and the business side of the student's specialized interest.

JOB OPPORTUNITIES

For Fruit and Vegetable Crops majors there is a wide variety of jobs, including skilled workers on fruit and vegetable farms as foremen, operators or owners; employees on private estates and institutions; salesmen for various supplies, equipment and machinery companies, private and state produce inspection work; wholesale and retail sales with various market agencies and in many business and industry operations dealing with produce.

FRUIT AND VEGETABLE CROPS

FIRST YEAR

First Semester	*Credits*
Food and Resource Economics S01 Principles of Economics	3
Mathematics S03 or S04	2 or 3
Plant and Soil Sciences S01 Introductory Botany	4
Plant and Soil Sciences S05 Deciduous Orchards	3
Plant and Soil Sciences S07 Commercial Vegetable Production	3
Plant and Soil Sciences S33 Soil Management	4

Second Semester	*Credits*
Eight Weeks Resident Instruction followed by Five Months Placement Training	
Entomology S04 Insects and Related Forms	2
Plant and Soil Sciences S02 Plant Science	2
Plant and Soil Sciences S04A Orchard Pruning	2
Plant and Soil Sciences S12 Greenhouse Vegetables	2
Plant and Soil Sciences S34 Plant Nutrients	2
Plant Pathology S02 Plant Diseases	2

SECOND YEAR

First Semester	*Credits*
Entomology S05 Economic Entomology	3
Food and Agricultural Engineering S01 Power Units	3
Food and Agricultural Engineering S13 Controlled Environments	3
Plant and Soil Sciences S09 Small Fruits	3
Plant and Soil Sciences S99 Placement Training	3
Rhetoric S01 English Composition	3
Electives	3

Second Semester	*Credits*
Food and Resource Economics S15 Agricultural Business Management	3
Plant and Soil Sciences S18 Fruit Pest Control	3
Plant and Soil Sciences S28 Commercial Vegetable Culture	4
Plant and Soil Sciences S30 Orchard Management	4
Electives	3

University of Massachusetts

LABORATORY ANIMAL TECHNOLOGY

(in Department of Veterinary and Animal Sciences)

Head of Department: Professor Thomas W. Fox. Professors Black, Colby, Harris, Stern; Associate Professors Borton, Fenner, Lyford; Assistant Professors Duby, Marcum, McConnell, Reynolds.

Animal welfare control laws and the increasing demands being made upon the medical and veterinary professions and their support facilities have created the need for formally trained personnel serving in a paraprofessional capacity.

The Laboratory Animal Technology curriculum, which meets the educational requirements for certification by the American Association for Laboratory Animal Sciences and also leads to the Associate of Science Degree, is designed to provide a broad base of training encompassing the breeding, management and laboratory techniques associated with those species (rats, mice, hamsters, guinea pigs, rabbits, dogs, cats, primates and selected large animals) most frequently encountered in the research and health fields.

It should be noted that students intending to eventually enter a school of veterinary medicine (seeking the D.V.M. or V.M.D. Degree) should apply for admission to a pre-veterinary program in a four-year institution rather than to Stockbridge.

JOB OPPORTUNITIES

Graduates will be academically prepared to pursue careers in a variety of areas such as (1) in commercial production facilities for various animal species, (2) technicians in private and governmental animal research laboratories, (3) research aides in drug, surgical and control work and (4) in technical sales and services. Although the curriculum is not specifically designed for such, a number of graduates also secure employment as assistants to veterinarians in private practice.

LABORATORY ANIMAL TECHNOLOGY

FIRST YEAR

First Semester	*Credits*
Animal Science S01 Introductory Animal Science	3
Animal Science S05 Survey of Laboratory Animal Technology	1
Animal Science S12 Introduction to the Laboratory	1
Chemistry S17 Introductory Chemistry	3
Food and Resource Economics S01 Principles of Economics	3
Mathematics S03 or S04	2 or 3
Rhetoric S01 English Composition	3

Second Semester	*Credits*
Animal Science S02 Principles of Livestock Feeding	3
Animal Science S08 Anatomy and Physiology	3
Animal Science S18 Animal Facilities	2
Animal Science S22 Basic Laboratory Animal Husbandry	1
Bacteriology S03 Bacteriology and Environmental Hygiene	3
Food and Agricultural Engineering S12 Plant and Animal Environment Engineering	3
Elective	0-3

SECOND YEAR

First Semester	*Credits*
Animal Science S03 Animal Breeding	4
Animal Science S11 Laboratory Animal Management	3
Animal Science S14 Introduction to Clinical Laboratory Methods	3
Animal Science S17 Animal Diseases	3
Animal Science S19 Pharmacology	3
Elective	0-3

Second Semester	*Credits*
Animal Science S04 Livestock Production *OR*	4
Animal Science S06 Dairy Cattle Management	4
Animal Science S13 Laboratory Animal Management	3
Animal Science S16 Veterinary Bacteriology and Mycology	2
Animal Science S21 Clinical Chemistry and Parasitology	2
Electives	3-6

University of Massachusetts

LANDSCAPE OPERATIONS

Head of Department: Professor E. Bruce MacDougall. Professor Mosher; Associate Professors Hamilton, Kent; Assistant Professor Olson.

The constantly increasing interest in more intensive development of both public and private grounds has created a demand for persons trained to handle the varied problems in landscape construction and maintenance. This curriculum is designed to acquaint the student with these phases of landscape operations and to provide the basic knowledge and cover the most recent developments in those areas of learning on which the solutions to these problems depend.

The courses within the department deal with the study of drafting-room practices and field techniques necessary for the landscape development of grounds, including the measuring and grading of land surfaces, construction of walks, drives, terraces and walls and the laying out of such landscape elements. Additional courses deal with identification of woody plants, their use in landscape development and the programming of their handling and maintenance on grounds and in nurseries.

Courses in other departments deal with plant growth, soils, fertilizer and plant pests; with the identification and maintenance of herbaceous plants and turf grasses; with shade tree maintenance and; with plant propagation. Courses in Rhetoric and Elementary Accounting help to round out the student's training.

In addition to the formal course work, the student is expected to spend the five months between the first and second years as an employee of a person or firm in some phase of landscape operations. This placement period normally is from the first of April to the first of September. While on placement, the student is required to compile certain reports which deal with relevant aspects of landscape operations.

Financial obligations over and above those listed in this catalogue include drafting equipment amounting to approximately $25.00, and field trips with a total estimated cost of $30.00.

JOB OPPORTUNITIES

Alumni of this department are qualified for positions as plant propagators, foremen or superintendents for nurseries; gardeners, foremen or superintendents on private estates, public parks, cemeteries, botanical gardens and various other public and private institution grounds; foremen with landscape contractors and real estate developers; owners of their own landscape firms, nurseries and garden centers; salesmen for seed and nursery concerns.

LANDSCAPE OPERATIONS

FIRST YEAR

First Semester	*Credits*
Landscape Operations S01 Plant Materials	1
Mathematics S03 or S04	2 or 3
Plant and Soil Sciences S01 Introductory Botany	4
Plant and Soil Sciences S33 Soil Management	1
Plant and Soil Sciences S41 Basic Factors, Construction and Maintenance of Fine Turf Areas	1

Second Semester	*Credits*
Eight Weeks Resident Instruction followed by Five Months Placement Training	
Entomology S04 Insects and Related Forms	2
Landscape Operations S02 Plant Materials	2
Landscape Operations S04 Landscape Maintenance	1
Plant and Soil Sciences S02 Plant Science	2
Plant and Soil Sciences S34 Plant Nutrients	2
Plant Pathology S02 Plant Diseases	2

SECOND YEAR

First Semester	*Credits*
Arboriculture and Park Management S01A Principles and Practices	2
Entomology S05 Economic Entomology	3
Landscape Operations S07 Topographical Mapping	3
Landscape Operations S13 Small Property Development	3
Landscape Operations S99 Placement Training	4
Plant and Soil Sciences S15 Plant Propagation	3
Rhetoric S01 English Composition	3
Elective:	
Plant Pathology S03 Shade Tree Diseases	3

Second Semester	*Credits*
Arboriculture and Park Management S02A Principles and Practices	2
Food and Resource Economics S01 Principles of Economics	3
Landscape Operations S08 Grading and Construction	3
Landscape Operations S10 Nursery Practices and Management	3
Plant and Soil Sciences S20 Herbaceous Perennial and Annual Plants	3
Electives:	
Food and Resource Economics S15 Agricultural Business Management	3
Food and Resource Economics S36 Taxation	3
Plant and Soil Sciences S04B Orchard Pruning	3
Plant and Soil Sciences S08 Bedding Plants	2

TURF MANAGEMENT
(in Department of Plant and Soil Sciences)

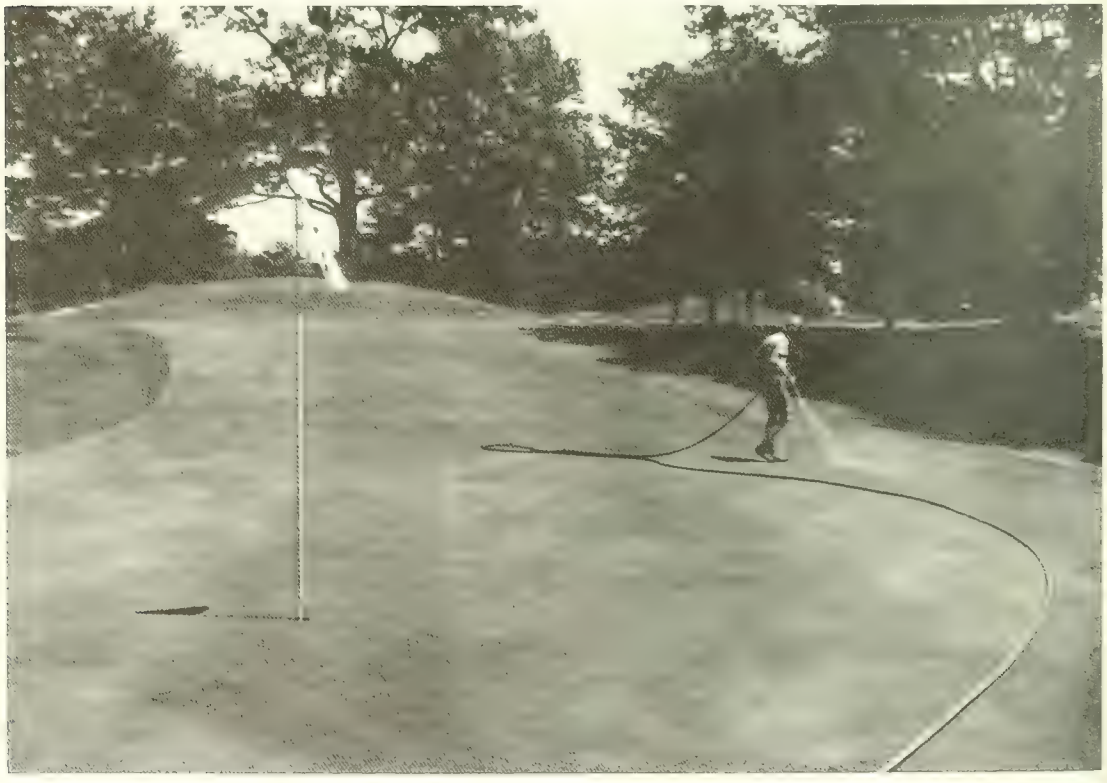
Head of Department: Professor Allen V. Barker. Professors Baker, Boicourt, Bramlage, Drake, Havis, Lord, Marsh, Maynard, Southwick, Troll, Vengris, Zak; Associate Professors Craker, Goddard, Greene, Jennings, Rosenau; Assistant Professor Anderson; Instructor Tristan.

Laboratory and field exercises in the Turf Management Program give practical experience and demonstrations. Good equipment is supplemented by loans from manufacturers and supply houses, and professional people visit the classes to give of their experiences. The supporting courses are strong and have been carefully chosen for their close alliance to the problems of turf maintenance and general estate work. Each student's placement training and special interest will be considered in his or her chosen field, whether it be park, golf course or private business. Every student will be required to keep a record of work done, results obtained and observations made during the placement training period, for use during the senior year. Field trips are required in a number of courses during the two years at an estimated cost to the student from $15.00 to $25.00.

JOB OPPORTUNITIES

There is an immediate need for skilled supervisors and assistants to superintendents of parks, cemeteries and recreation areas. Municipal and private golf clubs expect their superintendents to be trained in turf maintenance. Every city and large town offer splendid opportunities for the private business horticulturist who is especially well-trained to "take care of the lawn."

As new memorial parks, play fields, public buildings and golf courses are completed, the demand for new specialists in turf maintenance is increasing. The number of replacements needed annually is also large.



Students who major in Turf Management readily find jobs as assistants to superintendents and as superintendents of golf courses, cemeteries, commercial nurseries and landscape service companies as well as golf course construction companies and equipment supply dealers.

A student who has completed the work of this course will be well qualified to accept a position as assistant or the actual superintendency of a small park, cemetery or golf course, or to establish a business in his or her community.

TURF MANAGEMENT

FIRST YEAR

First Semester	*Credits*
Landscape Operations S03 Tree and Shrub Identification	3
Plant and Soil Sciences S01 Introductory Botany	4
Plant and Soil Sciences S33 Soil Management	4
Plant and Soil Sciences S37 Basic Factors and Uses of Turf Areas	3
Rhetoric S01 English Composition	3

Second Semester	*Credits*
Eight Weeks Resident Instruction followed by Five Months Placement Training	
Entomology S04 Insects and Related Forms	2
Food and Agricultural Engineering S04 Building Planning	2
Food and Agricultural Engineering S08 Drainage	2
Food and Resource Economics S06 Elements of Bookkeeping	3
Plant and Soil Sciences S38 Construction and Modification of Turf Areas	2
Plant Pathology S02 Plant Diseases	2

SECOND YEAR

First Semester	*Credits*
Arboriculture and Park Management S01A Principles and Practices	2
Food and Agricultural Engineering S01 Power Units	3
Food and Agricultural Engineering S09 Irrigation	4
Food and Resource Economics S07 Introduction to Social Behavior	3
Food and Resource Economics S17 Personnel Supervision	3
Plant and Soil Sciences S39 Turfgrass Physiology and Ecology	3
Plant and Soil Sciences S99 Placement Training	3

Second Semester	*Credits*
Arboriculture and Park Management S02A Principles and Practices	2
Food and Agricultural Engineering S03 Machinery	3
Food and Resource Economics S08 Business Law	3
Landscape Operations S08 Grading and Construction *OR*	3
Plant and Soil Sciences S20 Herbaceous Perennial and Annual Plants	3
Plant and Soil Sciences S40 Practical Turf Problems	3
Elective: Mathematics S04	3

Course Descriptions

All the courses described on the following pages are offered for college credit. The Roman numerals which follow each course title denote which semester the course is offered; *i.e.*, I. denotes fall semester courses and II. indicates spring semester courses.

ANIMAL SCIENCE
(LABORATORY ANIMAL TECHNOLOGY)

S01 INTRODUCTORY ANIMAL SCIENCE I.
The broad field of animal agriculture, its role in the national economy and in international relations. Emphasis on the application of the animal sciences in the production of more efficient animals and more acceptable animal products.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Duby.

S02 PRINCIPLES OF LIVESTOCK FEEDING II.
The application of the fundamental principles of animal nutrition to the feeding and management of the various classes of livestock including poultry. A modern feed manufacturing plant is visited.
3 class hours. Credit, 3. Mr. Fenner.

S03 ANIMAL BREEDING I.
The theoretical and practical aspects of breeding better livestock including physiology of reproduction and the genetic principles governing selection
4 class hours, 1 discussion section.
Credit, 4. Mr. Marcum.

S04 LIVESTOCK PRODUCTION II.
Beef, sheep and swine production in the United States; emphasis on those systems of livestock management particularly adapted to New England conditions. Four students are selected to compete in the Northeastern Agricultural Schools Judging Contest. A one-day field trip is required (approximate cost, $5.00).
2 class hours, 1 2-hour laboratory period.
Credit, 4. Mr. Colby.

S05 SURVEY OF LABORATORY ANIMAL TECHNOLOGY I.
An introduction to the duties of a laboratory animal technician, including the handling, feeding, breeding and care of the more common laboratory animal species. Designed to meet the academic requirements of the American Association for Laboratory Animal Science certification as Assistant Laboratory Animal Technician.
2 class hours Credit, 1.

S06 DAIRY CATTLE MANAGEMENT II.
An analysis of current practices and problems in dairy herd management with emphasis on those most directly related to profitable dairy farming. A one-day field trip is required. Laboratory charge.
2 class hours, 1 2-hour laboratory period.
Credit, 4. Mr. Duby

S07 MARKETING ANIMAL PRODUCTS I.
A survey of market requirements, marketing methods and price interrelationships of animal, dairy, poultry and associated products.
3 class hours Credit, 3. Mr. Denison

S08 ANATOMY AND PHYSIOLOGY II.
Principles of animal biology; emphasis on cells, tissues and organ systems, and the comparative anatomy and physiology of those mammals and birds of interest to Animal Science majors. Laboratory charge.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Black.

S09 ANIMAL PRODUCTS II.
Emphasizes relationships between live animals and their products. The effects of breeding, feeding and management on product quality, yield and efficiency of production.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Marcum

S10 POULTRY MANAGEMENT II.
A survey of the importance of the poultry industry and its relationship to other animals and food industries. Current practices and management systems in the production of eggs and poultry meat.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Grover.

S11 LABORATORY ANIMAL MANAGEMENT I.
Current practices and concepts of management of laboratory animal colonies. Includes physiological norms, environmental and nutritional requirements, sanitation, gnotobiology and special management systems. Laboratory charge.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Black, Mr. Harris, Miss McConnell.

S12 INTRODUCTION TO THE LABORATORY I.
Development of skills used in the chemical and biological laboratory, such as weighing, solution preparation, glassware, manipulation and cleaning, and microscopy. Laboratory charge.
1 2-hour laboratory period.
Credit, 1. Miss McConnell.

S13 LABORATORY ANIMAL MANAGEMENT II.
The methods of handling animals for experimental work. Diseases, special breeding systems, surgical assistance, pre-operative and post-operative care

and the fundamentals of radiology. Laboratory charge.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Black, Mr. Harris, Miss McConnell.

S14 INTRODUCTION TO CLINICAL LABORATORY METHODS I.
The basic techniques used in the clinical and research laboratory. Emphasis on urinalysis, hematology and serology. Laboratory charge.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Miss Reynolds.

S15 HORSE MANAGEMENT I.
A survey of the horse industry; emphasis on current practices and problems in the breeding, feeding, training and management of horses. Field trips cost $5.00-$10.00.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Colby.

S16 VETERINARY BACTERIOLOGY AND MYCOLOGY II.
Special techniques used in the clinical and research laboratory. Veterinary medical bacteriology, mycology and skin parasites. Laboratory charge.

1 class hour, 1 2-hour laboratory period.
Credit, 2. Mr. Harris, Miss Reynolds.

S17 ANIMAL DISEASES I.
Conservation of the health of animals as the keystone of successful animal production. The causes, development, control, eradication and prevention of diseases of economic importance to the livestock and poultry industries.

3 class hours. Credit, 3. Mr. Stern.

S18 ANIMAL FACILITIES II.
Ancillary functions which may be required of the technician in institutional and private animal facilities. Basics of ethics, terminology, records and financial practices.

2 class hours.
Credit, 2. Miss McConnell, Miss Reynolds.

S19 PHARMACOLOGY I.
The fundamentals of drug action, use and toxicology; emphasis on veterinary chemotherapy and anesthesia. Demonstrations and practice in anesthesia. Laboratory charge.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Harris.

S21 CLINICAL CHEMISTRY AND PARASITOLOGY II.
Analytical techniques used in the chemistry of body fluids. Practice in the collection, isolation and identification of internal animal parasites.

1 class hour, 1 2-hour laboratory period.
Credit, 2. Miss McConnell.

S22 BASIC LABORATORY ANIMAL HUSBANDRY II.
Discussions and practice in the handling, feeding, sexing and other fundamental procedures of the laboratory animal colony. Individual species' characteristics and requirements stressed. Laboratory charge.

1 2-hour discussion/laboratory period.
Credit, 1. Miss McConnell.

S50 SPECIAL PROBLEMS I and II.
Individual investigation of a specific problem in Animal Science or Laboratory Animal Technology. Admission by permission of advisor and instructor and completion of a contract detailing the work to be done.

Credit, 1-6.

S99 PLACEMENT TRAINING.
ANIMAL SCIENCE MAJORS—Optional; three months (June-August). Placement training work experience in the general field of Animal Science, with submission of reports. No academic or graduation credits awarded. However, a letter grade is given which is only for the benefit of the student and employer.

LABORATORY ANIMAL TECHNOLOGY MAJORS—Not required but recommended; three months (June-August). Up to 4 academic credits for related and acceptable work (or part-time work during the school year), provided arrangements are made in advance. Letter grades given.

ARBORICULTURE AND PARK MANAGEMENT

S01 PRINCIPLES AND PRACTICES I.
Tree care. Laboratory period devoted to field practices and park layout problems. Professional organizational literature required. Laboratory charge.

2 class hours, 1 3-hour laboratory period.
Credit, 4. Mr. King.

S01A PRINCIPLES AND PRACTICES I.
(Lectures only—2 credits)

S02 PRINCIPLES AND PRACTICES II.
Continuation of S01. Laboratory charge for Arboriculture and Park Management majors.

2 class hours, 1 3-hour laboratory period. An eight-week course. Credit, 2. Mr. King.

S02A PRINCIPLES AND PRACTICES II.
(Lectures only—2 credits)

S04 RECREATION/OPEN SPACE SURVEY II.
Introduction to fundamental concepts and standards of recreation/open space area per unit of population. The student is required to make a recreation/open space inventory of his or her home town and to project those needs. Field trip.

3 class hours. An eight-week course.
Credit, 2. Mr. King.

S07 TREE AND PARK PROBLEMS I.
Programs and surveys dealing with tree, park and private tree work. For students desiring primarily arboriculture. Laboratory charge.

1 class hour, 1 4-hour laboratory period.
Credit, 3. Mr. King.

S08 UTILITIES AND TREE LAWS II.
Aspects of electric, telephone and gas companies and their tree and land use problems, laws and ordinances concerning trees.

1 4-hour class. Credit, 3. Mr. King.

S09 PARK ORGANIZATION AND ADMINISTRATION FOR LEISURE SERVICES I.
Problems of administration, financial and personnel requirements and management. Laboratory charge.

3 class hours. Credit, 3. Mr. Bumgardner.

S12 PARK MANAGEMENT AND OPERATION II.
The principles and purposes of operational and maintenance practices. Selection and adaptability of maintenance equipment.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Bumgardner.

S99 PLACEMENT TRAINING.
Required of all students majoring in Arboriculture and Park Management: Five months (April-September 1). Placement training work experience in the general field of Arboriculture and Park Management and the submission of required reports and collections.

Credit, 4.

BACTERIOLOGY

S03 BACTERIOLOGY AND ENVIRONMENTAL HYGIENE II.
An introduction to microbiology and to bacteriological laboratory techniques; emphasis on the use of these techniques by laboratory animal scientists. Laboratory charge.

2 class hours, 2 laboratory periods.
Credit, 3. Mr. Walker.

CHEMISTRY

S17 INTRODUCTORY CHEMISTRY I.
The scientific method and chemical phenomena, including both organic and inorganic aspects. Emphasis on practical applications. Lectures, demonstrations, assigned readings and problems.

3 class hours. Credit, 3. Mr. Hunting.

ENTOMOLOGY

S04 INSECTS AND RELATED FORMS II.
For freshmen majoring in Arboriculture and Park Management, Floriculture, and Landscape Operations who are devoted to an introduction to insect recognition, development, damage and control. Basic to a further study of specific pests and their control for those who will take Entomology S05. Laboratory charge.

2 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2.

S05 ECONOMIC ENTOMOLOGY I.
For seniors who have satisfactorily completed S04. Other students by arrangement with instructor. Involves principles and practical methods of controlling plant pests. Specific pests, their damage, life histories, environments and distribution. Laboratory charge.

2 class hours, 1 2-hour laboratory period.
Credit, 3.

FOOD AND AGRICULTURAL ENGINEERING

S01 POWER UNITS I and II.
Theory and principles of internal combustion engines. Engines of all common types, including reciprocating two-stroke and four-stroke, gasoline, diesel and rotary engines. Also covers electrical systems and power transmission. Laboratory charge

Prerequisite: Mathematics S03.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. E. Johnson

S03 MACHINERY I and II.
Principles of engines and machinery operation, maintenance, selection and minor repair. Arc and acetylene welding. Agricultural production equipment emphasized first semester; turf equipment emphasized second semester. Laboratory charge.

1 class hour, 2 2-hour laboratory periods.
Credit, 3.

S04 BUILDING PLANNING II. (Turf Majors)
The materials and methods of light construction, functional planning, sketching and layout drawings of buildings. Emphasis on recreational areas. Laboratory charge.

2 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2. Mr. Pira.

S05 STRUCTURES AND ENVIRONMENT II. (Animal Science Majors)
Planning structures and environments for animal housing and related functions. Materials and methods of construction, ventilation and energy conservation; layout and space planning.

2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Clayton.

S06 PLANT GROWTH STRUCTURES II. (Floriculture Majors)
Materials and methods of construction. System planning, materials handling, utilities and equipment selection. Laboratory exercises include functional planning, sketching and drawing of plant

growth structures. Laboratory charge.

2 class hours, 1 2-hour laboratory period.

Credit, 3.

S07 STRUCTURES AND UTILITIES II.
Materials and methods of light construction of buildings related to parks and recreational areas. Emphasis on systems planning, electrical utilities and wiring exercises. Laboratory charge.

2 class hours, 1 2-hour laboratory period.

Credit, 3. Mr. Pira.

S08 DRAINAGE II. (Turf Majors)
Principles, methods and materials related to the design and installation of drainage systems. Emphasis on sub-surface drainage practices for golf course fairways and greens. Use of the surveyor's level for field drawings.

3 class hours. An eight-week course.

Credit, 2. Mr. Pira.

S09 IRRIGATION I. (Turf Majors)
Principles of hydraulics and system design for golf courses. Irrigation planning and layout of irrigation system; equipment performance and selection; installation practices and operating procedures. Laboratory charge.

2 class hours, 1 3-hour laboratory period.

Credit, 4. Mr. Pira.

S12 PLANT AND ANIMAL ENVIRONMENT ENGINEERING I and II.
Engineering principles related to structural design and environmental control. Basic principles of electricity including units, terms and their relationships, distribution, wiring, fusing, materials and system planning. The principles of electric motors, lighting, temperature control and water supply. Laboratory charge.
Prerequisite: Mathematics S03.

1 class hour, 1 2-hour laboratory period.

Credit, 3. Mr. Pira.

S13 CONTROLLED ENVIRONMENTS FOR FRUIT AND VEGETABLE STORAGE AND/OR PRODUCTION I.
Basic principles of fluid flow, heat transfer and psychometry as related to the storage/preservation and/or production of fruits and vegetables. Environmental control and energy conservation.

2 class hours, 1 2-hour laboratory/problem solving period. Credit, 3. Mr. Clayton.

S20 SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING I and II.
For advanced students. Independent work on an applied problem related to some area dealing with the application of engineering to the food and agricultural industries.
By permission of advisor and instructor.

Credit, 1-3.

FOOD AND RESOURCE ECONOMICS

S01 PRINCIPLES OF ECONOMICS I and II.
Basic economic principles applied to the business firm, farm, household and the market.

3 class hours.

Credit, 3. Mr. Callahan, Mr. Crossmon.

S02 WORLD'S FOOD SUPPLY II.
Economic geography of world's food supply with emphasis on Africa, Southeast Asia, Soviet Union and North America. The race between technology and human fertility.

3 class hours. Credit, 3. Mr. Jarvesoo.

S03 ACCOUNTING PRINCIPLES II.
System and organization of financial data related to business activities for control and decision-making. Subjects include special journals, notes and interest, merchandise inventory, deferrals and accruals, plant assets and depreciation, systems and controls, payrolls and concepts and principles.

3 class hours, 2 1-hour laboratory periods.

Credit, 4. Mr. Spindler.

S04 ACCOUNTING PRINCIPLES I.
Business activities, organization and systems as a basis for managerial decision-making. Topics include partnership and corporate business forms, financing with stocks and bonds, departments and branches, process and job order cost systems, budgeting, income taxes, cost and revenue relationships, management reports, funds flow and cash flow, consolidated statements, financial statement analysis. (Planned trip to New York Stock Exchange and Federal Reserve Bank, fee $6-$9.)

3 class hours, 2 1-hour laboratory periods.

Credit, 4. Mr. Spindler.

S05 MANAGERIAL ACCOUNTING I.
The application of accounting principles and concepts for managerial decision-making in agricultural businesses. Financial management and the use of operating data through statement analysis, budgeting and cost control emphasized.
2 class hours, 1 2-hour discussion period.
Credit, 3. Mr. Crossmon.

S06 ELEMENTS OF BOOKKEEPING II.
An eight-week course for Turf freshmen. The fundamentals of the double-entry system of bookkeeping.
3 class hours, 2 2-hour laboratory periods.
Credit, 3. Mr. Callahan.

S07 INTRODUCTION TO SOCIAL BEHAVIOR I and II.
Introduction to the basic concepts of Psychology and Sociology. Analysis and discussion within an applied framework. Students draw upon their personal experiences in attempting to understand current approaches in the disciplines. Attempts to prepare students for satisfactory social interaction in both their home and work situations.
3 class hours. Credit, 3. Mr. Knapp

S08 BUSINESS LAW II.
Contracts, sales, property law, and the uniform commercial code. Case examples used.
3 class hours. Credit, 3. Mr. Lee, Mr. Spindler.

S10 PART-TIME AGRICULTURE II.
Alternatives in part-time agricultural production and marketing are evaluated. Guest lecturers speak on technical requirements for producing cattle, sheep, vegetables, small fruit, tree fruit, forest products, etc. Budgets are developed for producing these commodities on a part-time basis.
3 class hours. Credit, 3. Mr. Lee.

S13 BUSINESS MANAGEMENT I.
Objectives are: to understand the goals and operating techniques of business; to analyze alternative procedures in production and marketing; to evaluate the effects, in a competitive setting, of astute managerial decisions on owners' returns, wage payments, consumer prices and the country.
3 class hours. Credit, 3. Mr. Spindler

S14 RETAIL OPERATIONS AND MANAGEMENT I.
Principles and practices of starting and operating a retail business. Marketing strategy, site analysis and sales estimation, financial planning and control, buying and pricing and important legal requirements. Case studies develop the student's ability to identify and solve problems in retailing
3 class hours. Credit, 3. Dr. Leed.

S15 AGRICULTURAL BUSINESS MANAGEMENT I and II.
Economic principles, management tools and analysis methods applied to practical business management problems of commercial farms and other agricultural firms.
2 class hours, 1 2-hour discussion period.
Credit, 3. Mr. Leed.

S17 PERSONNEL SUPERVISION I.
An analysis of the environment within which first-line and middle managers work. Emphasis on small group behavior and its impact on employee efficiency. The role of the supervisor as an implementor of company policies and work plans, in light of principles and concepts of human motivation.
2 class hours, 1 2-hour discussion period.
Credit, 3. Mr. Marion.

S24 MARKETING MANAGEMENT II.
A management oriented analysis of marketing functions performed by agricultural business firms. Emphasizes development of a background for problem solving and decision-making by marketing managers
2 class hours, 1 2-hour discussion period
Credit, 3. Mr. Marion

S26 RESEARCH METHODS IN MARKETING II.
Elements of research procedures, collection, presentation, interpretation of economic data.
3 class hours. Credit, 3.

S31 BUSINESS CAREERS SEMINAR I.
Guest lectures by representatives from various agricultural businesses covering a wide scope of career experiences. Assists the student in selecting summer placement.
A 2-hour seminar. Credit, 1. Mr. Marion.

S35 INVESTMENTS I.
Basic principles for better financial management for individuals and families. Stresses the factors causing changes in values of stocks and bonds and attempts to predict economic activities and expected earning power of businesses in order to obtain better than average growth rates on investments
3 class hours. Credit, 3. Mr. Spindler.

S36 TAXATION II.
The sources and uses of tax funds. Basic provisions of federal income taxes particularly as they apply to individuals and small businesses. Instruction in filing tax returns. Property taxes, state income taxes, sales taxes, etc., also examined.
3 class hours. Credit, 3. Mr. Spindler

S50 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS I and II.
For the advanced student. Opportunity for an in-depth independent study of a significant problem in food and resource economics. By permission of advisor.
Credit arranged.

S99 PLACEMENT TRAINING.
Required of all students majoring in Agricultural Business Management. Three months (June-September 1) work experience in the general fields of Agricultural Business Management, with submission of reports. No credit given, but Agricultural Business Management majors receive a letter grade.

FORESTRY

S01 FOREST LAND MANAGEMENT I.
Principles of multiple-use management of forest land for wood, water, wildlife and outdoor recreation. Emphasis on forest ecology, silviculture, mensuration and the business aspects of growing wood crops.

2 class hours, 1 4-hour laboratory period.
Credit, 4. Mr. Cole.

LANDSCAPE OPERATIONS

S01 PLANT MATERIALS I.
Evergreen and deciduous plants used in landscape work, their distinguishing characters and culture, with reference to nursery and planting practices.

2 class hours, 2 2-hour laboratory periods.
Credit, 4. Mr. Hamilton.

S02 PLANT MATERIALS II.
Continuation of Landscape Operations S01 including evergreen and deciduous plants used in landscape work.

2 class hours, 2 2-hour laboratory periods. An eight-week course. Credit, 2. Mr. Hamilton.

S03 TREE AND SHRUB IDENTIFICATION I.
The study and identification of evergreen and deciduous trees and shrubs used in landscape work.

1 class hour, 2 2-hour laboratory periods.
Credit, 3. Mr. Mosher.

S04 LANDSCAPE MAINTENANCE II.
In preparation for placement, the programming for such horticultural practices such as pruning, planting, winter protection and pest control, as related to gardens and nurseries.

2 class hours. An eight-week course.
Credit, 1. Mr. Mosher.

S07 TOPOGRAPHICAL MAPPING I.
Practice in the use of simple surveying instruments such as tapes, compasses and levels used in the measurement of land surfaces, and the application of these instruments in landscape contruction.
Recommended prerequisite: Mathematics S03 or S04.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Olson.

S08 GRADING AND CONSTRUCTION II.
A continuation of Landscape Operations S07. Emphasis on the drawing of landscape plans using profiles, cross sections and the establishment of grades.
Suggested prerequisite: Mathematics S03 or S04.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Olson.

S10 NURSERY PRACTICES AND MANAGEMENT II.
Nursery management procedures and the programming of nursery practices, studied through the development of a nursery program and visits to several nurseries. Field trips, including the Nurserymen's Short Course at the Suburban Experiment Station, required. Estimated total cost is $25.00. Open to Landscape Operations majors only.

1 class hour, 1 4-hour laboratory period.
Credit, 3. Mr. Mosher.

S13 SMALL PROPERTY DEVELOPMENT I.
The investigation of current trends in landscape development of small properties. Focus on planting design. Open to Landscape Operations majors only. Laboratory charge.

1 class hour, 2 2-hour laboratory periods.
Credit, 3. Mr. Kent.

S50 SPECIAL PROBLEMS I and II.
Independent work related to some area dealing with landscape operations. By permission of advisor and instructor.

Credit, 1-5.

S99 PLACEMENT TRAINING.
Required of all students majoring in Landscape Operations: Five months (April-September 1) placement training work experience in the field of nursery and landscape work and the submission of required reports and collections.

Credit, 4.

MATHEMATICS

S03 BASIC MATHEMATICS I.
Taught under Food and Agricultural Engineering. Practical mathematics: integers, fractions, decimals, logarithms, exponents, percentages, graphs, measures, ratio and proportion.

2 class hours. Credit, 2.

S04 ELEMENTARY COLLEGE ALGEBRA I and II.
Beginning and Intermediate Algebra for students who have not had algebra and students who need a review of Elementary Algebra. Real numbers, linear equations and inequalities, polynomials, rational exponents, radicals, factoring, rational expressions, quadratic and rational equations, functions and graphs.

3 class hours. Credit, 3.

PLANT AND SOIL SCIENCES

S01 INTRODUCTORY BOTANY I.
The structure, function and reproduction of plants; emphasis on the flowering plants. Laboratory charge.

3 class hours, 1 2-hour laboratory period.
Credit, 4. Mr. Bramlage.

S02 PLANT SCIENCE II.
Physiological functions in plants; emphasis on the influence of environmental factors on these processes.

2 class hours, 1 discussion period. An eight-week course. Credit, 2.

S03 GREENHOUSE MANAGEMENT I.
Greenhouse structures and the manipulation of the greenhouse environment as related to plant growth. Laboratory charge.

3 class hours, 1 3-hour laboratory period.
Credit, 4. Mr. Rosenau.

S04A ORCHARD PRUNING II.
The theory and practice of pruning deciduous fruit plants. Principles and techniques involved in repair grafting and topworking. Limited to Fruit and Vegetable Crops majors. Laboratory charge.

2 class hours, 1 3-hour laboratory period. An eight-week course. Credit, 2. Mr. Anderson.

S04B ORCHARD PRUNING II.
The theory and practice of pruning deciduous fruit plants. Principles and techniques involved in repair grafting and topworking. Principles and practices involved in the establishment and management of tree and small fruit plants. Laboratory charge.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Anderson.

S05 DECIDUOUS ORCHARDS I.
The principles and practices involved in the establishment and maintenance of deciduous orchards. Laboratory charge.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Anderson.

S07 COMMERCIAL VEGETABLE PRODUCTION I.
Commercial vegetable farm practices and problems including propagation, weed control, irrigation, plant nutrition and management. Laboratory charge.

2 class hours, 1 2-hour laboratory period.
Credit, 3.

S08 BEDDING PLANTS II.
Bedding plants commonly used in commercial floriculture and garden center work. Emphasis on culture, uses, marketing methods and identification. Laboratory charge.

2 class hours, 1 3-hour laboratory period. An eight-week course. Credit, 2.

S09 SMALL FRUITS I.
The principles and practices governing the establishment and management of small fruit plantings. Laboratory charge.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Anderson.

S10 FOLIAGE PLANTS II.
The more important foliage plants, the factors governing their production and use in homes and public buildings.

2 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2. Mr. Goddard.

S11 COMMERCIAL FLORICULTURE I.
The greenhouse culture of season crops, stressing modern concepts of production and management. Laboratory charge.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Goddard.

S12 GREENHOUSE VEGETABLES II.
The production of early plants, tomatoes and other crops in greenhouses and other structures. Laboratory charge.

2 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2. Mr. Jennings.

S13 FLORAL DESIGN I.
Commercial operation of retail flower establishments. Laboratory charge.

2 3-hour laboratory periods.
Credit, 3. Mr. Boicourt.

S14 PLANT PROPAGATION II.
Principles of plant propagation, both sexual and asexual. Emphasis on woody plants. Limited to Arboriculture and Park Management majors. Laboratory charge.

3 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2.

S15 PLANT PROPAGATION I.
Principles and practices for most methods of plant propagation such as seedage, cuttage, layerage and division. Laboratory charge.
3 class hours, 1 2-hour laboratory period.
Credit, 3.

S16 HERBICIDES II.
Current weed control practices in nursery and landscape maintenance.
1 class hour. Credit, 1. Mr. Vengris.

S18 FRUIT PEST CONTROL II.
Pest control methods, materials and equipment used in the production of fruit crops. Laboratory charge.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Anderson.

S20 HERBACEOUS PERENNIAL AND ANNUAL PLANTS II.
Important plant families; their use as ornamental plants for home, park and business.
2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Boicourt.

S22 FLORICULTURE LITERATURE AND PROBLEMS II.
Library reading and study on assigned subjects in the field of Floriculture. Oral and written reports required.
1 class hour, 1 2-hour laboratory period. An eight-week course. Credit, 2. Mr. Goddard.

S24 COMMERCIAL FLORICULTURE II.
The greenhouse culture of seasonal and year-round crops, stressing modern concepts of production and management.
2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Tristan.

S28 COMMERCIAL VEGETABLE CULTURE II.
Production practices and problems involved in growing the individual vegetable crops. Laboratory charge.
3 class hours, 1 2-hour laboratory period.
Credit, 4.

S30 ORCHARD MANAGEMENT II.
Recent technical developments as they apply to commercial orcharding in the Northeast. Research literature review stressed. Laboratory charge.
3 class hours, 1 2-hour laboratory period.
Credit, 4. Mr. Lord, Mr. Southwick.

S33 SOIL MANAGEMENT I.
The physical and chemical properties of soil for agricultural purposes and their management to enhance crop production. Laboratory charge.
3 class hours, 1 2-hour laboratory period.
Credit, 4. Mr. Rosenau.

S33A SOIL MANAGEMENT I.
The physical and chemical properties of soil for agricultural purposes and their management to enhance crop production. Limited to Animal Science majors.
2 class hours, 1 discussion period.
Credit, 3. Mr. Rosenau.

S34 PLANT NUTRIENTS II.
The functions of mineral nutrients in plants, the effects of mineral deficiencies, and sources of these nutrients to prevent or alleviate deficiencies in crop production. Laboratory charge.
Prerequisite: Plant and Soil Sciences S33.
2 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2. Mr. Rosenau.

S36 FIELD CROPS II.
Principles and cultural practices involved in the production of major feed and forage crops in the United States. Laboratory charge.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Craker.

S37 BASIC FACTORS AND USES OF TURF AREAS I.
An appreciation of the grass plant; the fine turf grasses from seed through uses. Identification of seed and vegetable growth as well as the limits of tolerance and factors affecting them, correlated with the adaptation of the species of the user's specification for various conditions. Maintenance factors discussed.
1 class hour, 2 2-hour laboratory periods.
Credit, 3. Mr. Troll.

S38 CONSTRUCTION AND MODIFICATION OF TURF AREAS II.
Adaptation of factors determined in the first semester to the practical construction of new turf areas and modification of existing turf.
2 class hours, 1 2-hour laboratory period. An eight-week course. Credit, 2.

S39 TURF GRASS PHYSIOLOGY AND ECOLOGY I.
The basic growth and development of the whole turf grass plant and its component parts. Competition in turf grass monostand and polystand communities. The effects of light, temperature, air and water on turf; the prevention and control of environmental stresses.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Troll.

S40 PRACTICAL TURF PROBLEMS II.
The use of popular and technical journals as a guide to advanced and up-to-date information on turf culture. Field trips to research stations, sod farm and business organizations serving the turf field. Practical problems on turf and equipment maintenance.
2 class hours, 1 2-hour laboratory period.
Credit, 3. Mr. Troll.

S41 BASIC FACTORS, CONSTRUCTION AND MAINTENANCE OF FINE TURF AREAS I.
The requirements for the growing of lawns and

sports turf. Construction of turf areas; seed identification of turf grasses and their soil and fertilizer preferences, correct cultural practices and control of turf pests and diseases. Limited to Arboriculture and Park Management and Landscape Operations majors.

1 class hour, 2 2-hour laboratory periods.
Credit, 4. Mr. Vengris, Mr. Zak.

S99 PLACEMENT TRAINING.
Required of all students majoring in Floriculture, Fruit and Vegetable Crops and Turf Management: Five months (April-September 1) work experience in the specific field of study with the submission of reports. Credit, 3.

PLANT PATHOLOGY

S02 PLANT DISEASES II.
A survey course dealing with the nature, cause and general procedures of plant disease control. The major classes of plant diseases caused by fungi, viruses, bacteria and nematodes and the influence of environment on plant disease.

3 class hours. Credit, 2. Mr. Rohde

S03 SHADE TREE DISEASES I.
Recognition and control of the principal types of diseases of trees in shade, street and ornamental usage. Laboratory charge.

2 class hours, 1 3-hour laboratory period.
Credit, 3. Mr. Holmes, Mr. Tattar.

S04 DISEASES OF ORNAMENTALS II.
Plant diseases, their causes, symptoms and significance. Emphasis on the major diseases of plants grown in the greenhouse or garden for flowers or ornamental purposes. The diagnosis, etiology and development of the disease and practical control measures. Laboratory charge.

1 class hour, 2 2-hour laboratory periods.
Credit, 3. Mr. Manning.

RHETORIC

S01 ENGLISH COMPOSITION I and II.
Practice in use of language for expression of ideas and feelings. Required readings as models for exercises in writing.

3 class hours. Credit, 3. Mrs. DuBois.

Academic Regulations

The academic year at the Stockbridge School of Agriculture begins in early September and ends in late May. It is divided into two semesters with the first semester ending just before the Christmas vacation and the second semester resuming in the latter part of January. There are one-day holiday periods during the first and second semesters and a one-week mid-semester break is observed during the second semester. The final week of each semester is devoted to final exams.

REGISTRATION
Registration is held the day before classes begin each semester. It is important for all students to register on that day. Students who do not complete their registration, including payment of semester fees, on the scheduled day are required to pay a $25.00 Late Registration Fee. Students failing to register will have their records inactivated.

CLASS ATTENDANCE
Attendance at all lectures, laboratories and class trips is expected of all students. Instructors establish their own rules and the Director will support whatever rules are established.

THE IMPORTANCE OF ADVISORS
Stockbridge students need and should seek the assistance and guidance of their major faculty advisor during their college career. It is a definite advantage to all students to maintain close contact with their advisors, for without their aid, students may find at graduation that they lack necessary credits or have omitted a course which is essential for the proper completion of degree requirements. Advisors are interested in, and cognizant of the welfare, of their students. They are there to help at any time!

STUDENT RELATIONS
The customary high standards of honor, self-respect and consideration for the rights of others constitute the standards of student deportment.

Any student known to be guilty of dishonest conduct or persistent violation of rules must be reported by the instructor to the Director.

The privileges of the Stockbridge School may be withdrawn from any student at any time if such action is deemed advisable.

It should be understood that the Stockbridge School, acting through the Director or any administrative officer designated by him, distinctly reserves the right not only to suspend or dismiss students, but also to name conditions under which students may remain in the School.

Similarly, also, it applies to participation in student activities. Though this will ordinarily be governed by the rules as already laid down, yet if in the judgment of Stockbridge authorities a student is neglecting his or her work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary.

PRE-REGISTRATION
It is every student's responsibility to select the next semester's courses with the help of advisors. Students must seek information concerning departmental requirements from their advisors as well as those listed in this catalogue. Newly accepted freshmen pre-register for their first semester classes during the summer counselling period which is held during one of the summer months. Pre-registration periods for the second, third and fourth semesters are held in April for the fall semester and in November for the spring semester. There is an exception, however, for second semester students majoring in Arboriculture and Park Management, Floriculture, Fruit and Vegetable Crops, Landscape Operations and Turf Management: these students pre-register for their third semester classes in March rather than in April because they leave for early placement training.

COURSE CHANGES

Students are permitted to add and/or drop courses and make section changes during the first 10 days of classes without any penalty. Advisors' and instructors' signatures must be secured for each course change.

COURSE WITHDRAWALS

A student who withdraws from a course between the 11th day and the 20th day of each semester will receive a notation of "W" on the records. Any changes made thereafter will result in a "WF" which will be calculated into a student's cumulative average as an "F."

REPETITION OF COURSES

If a student receives an unsatisfactory grade in a course and repeats it, both grades will appear on the records. However, only the satisfactory grade will be calculated into the quality point average.

WITHDRAWING FROM SCHOOL

Students desiring to withdraw from school at any time must see the Director or the Associate Director.

RE-ADMISSION

In most cases, students who have withdrawn or have been academically suspended from school, may be re-admitted. However, students who have been academically dismissed (suspended twice) cannot return. Students interested in returning to Stockbridge must obtain a re-admission application from the Stockbridge Office and submit it to the Director with a letter stating the reasons for leaving school. Students who have been suspended for academic deficiencies must be willing to raise their academic average to the standard required by Stockbridge.

GRADES

At the end of each semester, students receive written letter grades according to the quality point system below:

Letter Grade	*Interpretation*	*Quality Points Per Semester Hour*
A	Excellent	4.00
AB	Good to Excellent	3.50
B	Good	3.00
BC	Average to Good	2.50
C	Average	2.00
CD	Poor to Average	1.50
D	Passing, but not satisfactory	1.00
F	Failing	0.00
P	Passing	0.00
W	Withdrawn	0.00
WF	Withdrawn Failing	0.00
INC	Incomplete (all required work not turned in or permission granted to repeat final examination) Calculated as an "F" until letter grade is received to replace the INC	0.00

SEMESTER GRADE POINT AVERAGE

To compute the semester grade point average, the total points earned are divided by the total credits carried. Credits carried are defined as total credits earned and failed. Grade point averages are recorded to two decimal places (*i.e.*, 2.73, 2.82, etc.).

CUMULATIVE AVERAGE

To compute the cumulative grade point average, total points earned are divided by total credits carried—the sum of total credits earned and failed.

GRADE CHANGES

Any request for a grade change must be made in writing, reasons for change noted and signed by the instructor and student. Final approval of a grade change must be made by the Director. There should be no extra work

allowed after the marking period to a student desiring a grade change. Work assigned prior to final marking is not considered extra work.

DEAN'S LIST
Stockbridge recognizes the above-average academic performance of its students by placing them on the Dean's List. Students carrying 12 or more semester hours and earning a 3.00-4.00 cumulative quality point average for the first and/or second semesters and a 3.00-3.34 cumulative quality point average for the third and/or fourth semesters are placed on the Dean's List.

LEAR (Honorary Scholastic Society)
The Stockbridge Honorary Scholastic Society, LEAR, was established in 1935 to encourage high scholarship. Students who earn a 3.40 cumulative quality point average for the first three semesters and recently the fourth semester are elected to membership in this Society in March and May. Certificates are awarded with the Associate of Science Degree to members of each graduating class who have achieved this extraordinary distinction.

ACADEMIC STANDING
The Stockbridge Educational Policies Committee meets regularly with the Director to review academic performances of students. Academic probation, suspension or dismissal is based on regulations administered by this Committee. In order to remain in good standing, a student must meet at least the minimum academic requirements at the end of each semester. The cumulative averages on which academic policy is based is as follows:

	GOOD STANDING	PROBATION	SUSPENSION OR DISMISSAL
	Min. Cum.	*Cum. Av.*	*Cum. Av.*
Semester	*Av.*	*Range*	
First	1.45	1.35-1.44	1.34 or less
Second	1.75	1.65-1.74	1.64 or less
Third	1.95	1.85-1.94	1.84 or less
Fourth	2.00	—	1.94 or less

ACADEMIC PROBATION
A student is placed on academic probation when the cumulative average for any semester falls within the range indicated above. Such a student is required to attend all lectures and laboratories except in cases of sickness or family emergencies. The student is also not permitted to participate in those extracurricular activities which would interfere with academic performance.

ACADEMIC SUSPENSION
A one-semester suspension is invoked when a student's cumulative average falls on or below the average listed for suspension. It is an involuntary separation of the student from the School for one complete semester, after which the student may apply for re-admission.

ACADEMIC DISMISSAL
A student's second academic suspension will result in a permanent dismissal from school.

RIGHT OF APPEAL
Students have the right to appeal a suspension or dismissal in certain instances. They may petition their department through the Director for special consideration if there are extenuating circumstances and a reasonable explanation for poor grades. The Director and the department in consultation judge all such cases on an individual basis.

LOW CREDIT WARNING
A student's semester grade report indicates if an insufficient amount of credits have been earned. A minimum of 60 credits is required for graduation, an average of 15 credits per semester. Any student not carrying the required amount of cumulative credits each semester is issued a low credit warning.

GRADUATION REQUIREMENTS
Candidates, to qualify for the Associate of Science Degree, must fulfill the following requirements:

1) Achieve a final cumulative average of 2.00.
2) Successfully complete courses required in a department.
3) Acquire a minimum of 60 graduation credits (some programs require more than 60).

4) Successfully complete Placement Training as required by certain majors.

5) Satisfy all financial obligations to the School and University.

6) Be recommended by their major department as meeting all departmental requirements.

Students satisfying the graduation requirements in January receive their degrees with the students graduating in May. Candidates graduating in January and May have their degrees dated accordingly.

TRANSFERRING TO THE UNIVERSITY OF MASSACHUSETTS

We would like to emphasize that our two-year programs are terminal career programs. Our students graduating with the Associate of Science Degree are academically prepared and practically equipped to obtain employment and can capably perform duties in their fields of particular expertise.

However, it is realized that goals may change and it is possible for properly qualified and motivated Stockbridge graduates to transfer to the University of Massachusetts for further education. Such cases are considered individually by the Stockbridge Educational Policies Committee and the University's Transfer Affairs Office. The following procedures and policies apply to those students transferring to departments in the College of Food and Natural Resources and usually to those students transferring to other schools and colleges within the University.

REQUIREMENTS

1) A student will be considered for transfer if possessing 12 or more transferable college credits and a cumulative average of 2.75 or better.

2) The applicant must have earned not less than a C in Rhetoric S01 (English Composition) and not less than a C in Mathematics S04 (Elementary College Algebra).

3) The applicant must be recommended for transfer by the department which awarded the Associate of Science Degree and by the department into which transfer is desired.

PROCEDURES

1) *March 1st is the deadline date for filing completed applications in the Director's Office in Stockbridge Hall for transfer to the University.* Each application must be accompanied by the following:

   a. $10.00 Application Fee for in-state applicants and $25.00 Application Fee for out-of-state applicants.

   b. Proof of Residency Form.

   c. Recommendation signed by the applicant's advisor or department head of the applicant's previous program and the department into which transfer is requested.

   d. Transcripts from other colleges the applicant may have attended.

2) The Director of the Stockbridge School, in consultation with members of the Stockbridge Educational Policies Committee, will recommend or not recommend applicants to the Dean of Admissions at the University.

3) The Dean of Admissions at the University (*not the Director of Stockbridge*) will notify the applicant of his/her acceptance or rejection.

EVALUATION OF THE APPLICANT'S STOCKBRIDGE RECORD

The department to which the student is transferring will determine (a) the number of semester hours of transfer credit (which may vary considerably from less than 30 credits to as many as 50 credits) and (b) how many additional credits will be needed to qualify for the Bachelor of Science Degree. It is required that the department head file a report of these findings in the Office of the Registrar.

Expenses

Expenses are approximately $2800.00 per year for the normally economical student. The following estimate of one year's expenses, based chiefly upon last year's costs, includes only those items which are strictly college-related and does not include amounts for clothing, laundry, travel, etc. These costs vary slightly from year to year. Tuition for residents of Massachusetts is $525.00 per year and $1550.00 per year for all others. The University reserves the right to change any fees without advance notice.

SUMMARY OF ESTIMATED EXPENSES FOR FRESHMEN AND SENIORS

	FIRST YEAR *1½ semesters	SECOND YEAR 2 semesters	SECOND YEAR 2 semesters
Tuition (Mass. Residents)	$393.75	$525.00	$525.00
Room Rent in University Residence Halls (Approx.)	619.50	826.00	826.00
Board at University Dining Halls (19 Meals/Week—Approx.)	642.00	856.00	856.00
Telephone (Where Available)	35.25	47.00	47.00
Activities Fee	60.50	60.50	65.00
Athletic Fee	22.50	30.00	30.00
Campus Center Fee	59.25	79.00	79.00
Commencement Fee	—	—	10.00
Fine Arts Fee	4.50	6.00	6.00
Identification Card	1.00	1.00	—
Mass PIRG (Optional)	3.00	4.00	4.00
Physical Education/General Rec. Fee	15.00	20.00	—
Student Health Fee	81.00	108.00	108.00
Student Medical Insurance (Annually) (Optional)	56.50	56.50	56.50
Books, Stationery, Laboratory and Other Supplies	125.00	175.00	175.00
	$2118.75	$2794.00	$2787.50

*These are the estimated expenses for students majoring in Arboriculture and Park Management, Floriculture, Fruit and Vegetable Crops, Landscape Operations and Turf Management who go on "early placement" in March during their second semester

EXPLANATION OF FEES AND PAYMENTS

TUITION

As a state institution, Stockbridge offers the privilege of in-state tuition to all students entering from the Commonwealth. Eligibility for admission under the low residential rate is determined in accordance with the policy established by the Trustees of the University of Massachusetts.

SPECIAL STUDENTS' TUITION
The Special Student tuition rate is $26.25 per credit for Massachusetts residents, up to a maximum of $262.50, and $77.50 per credit for non-residents, up to a maximum of $775.00. All students must pay a $1.00 identification card fee yearly, and a student taking five or more credits or three or more courses a semester must pay a Campus Center Fee and a Health Fee.

RESIDENCE HALL ROOMS
All students, except commuters (whose home residence is within a 40-mile radius) and/or married students, are required to live in University residence halls. If resident hall facilities are non-existent, late applicants must file an exemption with the Housing Office, 235 Whitmore Building, to live off-campus. Students interested in family housing should contact the Family Housing Office in Berkshire House.

NOTE: In all residence halls, the student must supply a study lamp, a metal waste basket, bed linen, pillow and blankets.

ACTIVITIES FEE
This fee supports student government and an extensive and varied range of cultural and social activities for students. In addition, payment entitles each student to admission to many campus events and provides each student with the *Collegian* (the daily University newspaper); STOSAG (the School yearbook); the *Shorthorn* (the Stockbridge newsletter) and other related materials.

ATHLETIC FEE
Funds received from this charge are used to support comprehensive men's and women's intercollegiate programs as well as fine intramural programs.

CAMPUS CENTER FEE
Funds received from this fee are used to support the Student Union and the Campus Center and meet the operating costs of its various activities.

COMMENCEMENT FEE
A Commencement Fee of $10.00 is assessed all students in September of their senior year, in order that commencement exercises and events may be self-supporting.

FINE ARTS FEE
Funds received from this fee are used to support a varied and comprehensive program of fine arts events for the cultural enrichment and enjoyment of the undergraduate body.

PHYSICAL EDUCATION GENERAL RECREATION FEE
Income from this fee is used to support the physical education program, intramural athletics and general recreation.

STUDENT HEALTH FEE
Funds received from this charge are used to support the medical, psychiatric and health services provided by the staff of the Health Center.

STUDENT MEDICAL SURGICAL INSURANCE
This is an *optional* plan intended to supplement the care received by students at the Health Center. It provides hospital, medical and surgical care on a twelve month basis for injuries or illness during the school year, holidays, summer vacation and other times when the student is away from school. Students who register for the fall semester have only one opportunity to enter or reject this program each year: at the time of payment of the fall semester bill. It is also offered on the spring semester bill for new spring registrants only. Married students desiring family coverage under the plan now in existence at the University are advised to contact the Student Health Services.

BOOKS AND SUPPLIES
For the convenience of students, the University maintains a store service in the Physical Plant. Here all textbooks may be purchased at cost plus transportation charges. Students are informed at the first class session in each course what books are required and must

secure individual copies according to the order list sent in by the instructor. Students should not purchase any books until meeting with the instructor.

LABORATORY CHARGES
Some departments have laboratory charges which range from $2.00 to $25.00 per course. Students receive laboratory charge cards from their instructors and must pay them as soon as possible. If a student fails to pay laboratory charges, the instructor will issue an "Incomplete" for the student's course.

TRANSCRIPT FEE
Stockbridge students are allowed two transcripts free of charge. The fee for each additional transcript is $2.50 per copy. Students may request a copy of their records either in person, by letter or by telephone. Checks or money orders for transcripts must be made payable to the Treasurer, University of Massachusetts.

SCHOLARSHIP PAYMENT
It is the responsibility of all scholarship holders to see that the University is adequately notified prior to the time fee bills are prepared. Known scholarhips are shown on the fee bills. If such items are not shown, deductions may not be made from the bill until satisfactory evidence has been presented to the Bursar of the University by the donor.

PAYMENT DUE DATES
In accordance with University policy, all charges for tuition, fees, board and room rent in University residence halls are due and payable prior to the date of registration of each semester. Bills are rendered in advance with due date shown; payment is best made by mail. No student may register until all University charges are paid.

LATE REGISTRATION AND PAYMENT
Students who do not complete their registration, including payment of semester charges, on the regular registration days are required to pay a late fee of $25.00.

REFUNDS

TUITION AND FEE REFUNDS
A student who leaves the University for any reason, except as specified below, before a semester is completed is granted a pro rata refund of tuition and fees. A student who makes an advance payment and then for any

reason does not attend any part of the next semester or term at Stockbridge is given a full refund of tuition and fees. The $15.00 Matriculation Fee required of new students is not refundable.

Refunds are first applied to reimburse scholarship or loan funds (up to the full amount), and any remaining amount is refunded to the student or parent. A student who is suspended or dismissed from Stockbridge for disciplinary reasons forfeits all rights to a refund.

Refund Schedule

A) Within the first two weeks from the beginning of semester or term (Registration Day)—80%

B) During the third week—60%

C) During the fourth week—40%

D) During the fifth week—20%

E) After the fifth week—no refund

ROOM RENT AND BOARD REFUNDS

A student who has made an advance payment of room rent is granted a full refund of prepaid room rent if he or she fails to attend any part of the next semester or term or does not reside in a residence hall or other housing. Prepaid board is refunded on a special per diem basis.

According to the Trustees' policy on Room Rent Refunds, "student room rent refunds shall be refundable according to the following instructions: Any student who occupies his her assigned accommodations and subsequently leaves the University prior to the end of the first full class week shall automatically be charged a minimum of $100.00 for his/her room. Any student who leaves the University during the second through fifth weeks shall be charged $100.00 plus 20% of the remaining balance for each week or part thereof. No refunds will be made after the fifth week of the academic semester. Refunds will be made during the refund period only to students who officially withdraw from the University through the Registrar's Office and according to the Registrar's official withdrawal date."

Financial Aid

Financial Aid consists of scholarships and grants (the awarding of money for which no repayment is expected) and self-help in the form of loans (money to be repaid after the termination of studies) and employment (guaranteed jobs to provide a certain income during the year). Financial Aid is offered only to those students who cannot, through their own and their parents' reasonable efforts, meet the full costs of a college education.

Funds for financial aid programs come from Federal and State appropriations as well as from private and alumni contributions. Each eligible student applicant is considered automatically for every University administered aid program. Students desiring further description of specific programs may obtain information sheets from the Financial Aid Office, Whitmore Administration Building.

APPLICATION PROCEDURES

An application for financial assistance consists of two forms: a University Aid Application and the Financial Aid Form (used by students either financially dependent or financially independent of their parents). Both forms must be submitted before an application may be processed.

INSTRUCTIONS FOR HIGH SCHOOL SENIORS

All high school seniors applying for financial assistance must file their completed applications before March 1 of their senior year. Applications received after that date are considered late and will be processed only if funds remain.

SPECIAL NOTE: The Basic Educational Opportunity Grant Program (BEOG) is a Federal grant program. Maximum awards under this program could be as high as $1400.00 per year. The BEOG Program is an entitlement program under which all eligible

applicants who demonstrate financial need according to the Federal guidelines will receive Basic Grants. Applications should be available after December 15 through your high school. (If not available, please contact the Financial Aid Office, Whitmore Administration Building.)

INSTRUCTIONS FOR ALL OTHER APPLICANTS

The priority deadline for financial assistance for all other students is April 15 preceding the academic year for which aid is requested.

COLLEGE WORK-STUDY

Under the College Work-Study Program, a student who meets established financial aid criteria can be assigned to a part-time job on campus or during the summer months to a job with a non-profit agency in his or her community.

BENEFITS FOR VETERANS AND THEIR DEPENDENTS

Veterans or their dependents (wife or child of a deceased or 100% disabled veteran) eligible for educational benefits under the Veterans Bill, P.L. 358, the Disabled Veterans Bill 894, or the War Orphan Bill 634, should contact the Veterans Affairs Office at the University 30 days before their classes begin for regular enrollment or up to 120 days before classes for Advancement Payment of their checks. It is important that the eligible student contact the Veterans Affairs Office prior to the beginning of school so that he/she may expect the first check when classes actually begin. It takes approximately four to six weeks for payment after the veteran student has filed the proper V.A. paperwork with the Veterans Affairs Office at the University.

Veterans whose home of record was Massachusetts when they entered the Service may be eligible to apply for a state tuition waiver.

TYPES OF AID

LOANS

NATIONAL DIRECT STUDENT LOAN PROGRAM

Students may borrow up to $2500.00 for their two years at Stockbridge under this program. Interest at 3 percent begins nine months after completion of the program; the loan is to be repaid within 10 years. Because of the amount available, this program is necessarily limited and selective.

HIGHER EDUCATION LOAN PLAN

Students may obtain loans of up to $2500.00 for two years at Stockbridge from the bank of their choice through the Higher Education Loan Plan. Application procedures, eligibility criteria and other relevant information are available from the Financial Aid Office.

Stockbridge also has six short-term emergency loan funds which are allocated with no interest to worthy and needy applicants. Most loans do not generally exceed $50.00 and repayment must be made within one month from the date of issue. Application for any of the following loans must be made in the Director's Office.

1) *Rollin H. Barrett Emergency Loan Fund* (established by the friends of the late Professor Barrett).
2) *Massachusetts Agricultural Club Loan Fund* (funded by the Massachusetts Agricultural Club).
3) *Charles Hiram Thayer Memorial Fund* (established by the friends of the late Professor Thayer).
4) *Lawrence R. Lehto Memorial Student Loan Fund* (established by the family and friends of the late Larry Lehto, a 1972 graduate of Stockbridge).

5) *Bartlett Loan Fund* (established by the F. A. Bartlett Tree Expert Company of Stamford, Connecticut. Available to students majoring in Arboriculture and Park Management).

6) *Stockbridge Emergency Loan Fund* (increased by class gifts over the years—Classes of 1951, 1952, 1953, 1955, 1956, 1957, 1958, 1959 and 1961).

THE VINCENT GOLDTHWAIT LOAN FUND
This fund was established by Dr. Joel E. Goldthwait, University of Massachusetts 1885 of Boston, as a memorial to his son who died in 1922 during his junior year at Harvard. Its purpose is to aid worthy students in financial difficulties. Loans are granted up to $200.00 and repayment should be made prior to graduation. Requests for this fund should be made in person to the Director of Financial Aid who is responsible for the administration of all loans.

LOTTA M. CRABTREE ESTATE AGRICULTURAL FUND
The Trustees of the Lotta M. Crabtree Estate are once again making loan funds available for farm financing to graduates of the Stockbridge School of Agriculture and the University of Massachusetts.

The purpose of loans from these funds is to assist meritorious graduates in establishing themselves in productive agricultural pursuits. These loans are made without interest or service charges other than the cost of title search and legal papers. They must, however, be paid back in full amount within a reasonable length of time and there are certain restrictions on their use. For more information about these Agricultural Loan Funds, contact:

Director, Stockbridge School of Agriculture
University of Massachusetts
Amherst, MA 01003
Telephone: 413-545-2222

or

Trustees, Lotta M. Crabtree Estate
Room 314, 73 Tremont Street
Boston, MA 02109
Telephone: 617-523-7808

Decisions regarding the granting of a loan rest entirely with the Trustees under the terms of Miss Crabtree's Will

SCHOLARSHIPS

Prospective senior students should file scholarship applications with the Financial Aid Office by March 15 of their freshman year.

ASCENSION FARM SCHOOL SCHOLARSHIPS
Trust funds from the Ascension Farm School Corporation of Great Barrington were given to the University Trustees in 1952, the income to be used to provide for the "education and training in agriculture of boys residing in Western Massachusetts," as stated in its original charter. This makes possible the award of scholarships to male students residing in Berkshire, Hampden, Hampshire, and Franklin Counties with special consideration to applicants from Berkshire County.

FLORICULTURE CLUB SCHOLARSHIPS
$100.00 awards to freshmen or seniors majoring in Floriculture

FLORISTS' and GARDENERS' CLUB OF WESTERN MASSACHUSETTS SCHOLARSHIP
An annual scholarship of $100.00 to be awarded to a senior student (man or woman) majoring in Floriculture or Landscape Operations.

GEORGE M. and EDITH H. CODDING SCHOLARSHIPS
Annual stipends to graduates of public high schools in Taunton and Martha's Vineyard

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA SCHOLARSHIPS
Three $300.00 scholarships given annually to students majoring in Turf Management.

J. T. and N. BUTTERWORTH SCHOLARSHIP
A $300.00 scholarship for a student majoring in Floriculture in memory of Rachel Butterworth Dietz.

MERWIN MEMORIAL
A $500.00 scholarship for a senior in Veterinary and Animal Science. Funds are provided by Merwin Memorial Free Clinic for Animals, Inc., of Allston, Massachusetts.

NEW ENGLAND VEGETABLE GROWERS ASSOCIATION
An annual scholarship of $100.00 to be awarded to a deserving student majoring in Fruit and Vegetable Crops

NEW YORK FARMERS SCHOLARSHIP
Awards to the senior and freshman with the highest cumulative average.

OSCAR G. ANDERSON MEMORIAL FUND
Stipends to worthy students of good character and in need of assistance for the purchase of textbooks necessary for courses in Fruit Growing. Recommendations are made by the staff in Plant and Soil Sciences to the Director.

STOSO SCHOLARSHIPS
Several $100.00 scholarships awarded to outstanding members of the freshman and senior classes.

V. A. RICE SCHOLARSHIP
A scholarship for a worthy student majoring in Animal Science. Funds are provided in memory of the late Professor Rice who headed the Animal Science Department for many years.

WILBUR H. H. WARD SCHOLARSHIPS
The Wilbur H. H. Ward Fund is administered by a board of trustees independent of the University. Applicants for these scholarships should write to Ms. Jean Green, Admissions Office, Whitmore Administration Building, University of Massachusetts, Amherst, MA 01003. Only Hampshire County residents are eligible.

WORCESTER COUNTY POULTRY ASSOCIATION
A $100.00 scholarship in memory of George Treadwell, to a student majoring in Veterinary and Animal Sciences and having an interest in Poultry Science.

Student Activities and Services

STOSO
STOSO is the Stockbridge Service Organization designed to aid the Stockbridge School of Agriculture when help is requested. One objective of this organization is to better the relations between the Stockbridge School and the four-year students of the University of Massachusetts.

SENATE
In the Stockbridge Senate, each major, club and organization is represented, enabling each student to have a voice in the School's student government. All its activities are coordinated through committees; a major responsibility is recommending a student government budget. Its functions are many and varied, but are always directed toward improving the academic and social affairs of the student.

SHORTHORN
The *Shorthorn* is the recognized Stockbridge School newsletter which was first published in 1961. Many Stockbridge students contribute their time and ideas to make an informative paper featuring editorials, poems and various student activities. The *Shorthorn* is published bi-monthly.

STOSAG
STOSAG is the Stockbridge School yearbook which is written and edited by a volunteer student-oriented staff. We would like to encourage you, as prospective students, to take an active interest in displaying your creative abilities in this fine publication.

PROGRESS BANQUET
The Progress Banquet is held once a year, usually in March. It is an important occasion at which outstanding professors in each major are announced, scholarships are awarded and students are cited for their scholastic and/or athletic achievements.

ANIMAL SCIENCE CLUB
The Animal Science Club is an organization whose main purpose is to promote, improve and increase the interest of students in the field of Animal Science. The Club is open to all students interested in Animal Science.

ARBORICULTURE AND PARK MANAGEMENT CLUB
The Arboriculture Club was formed in 1946 with the purpose of helping the senior and freshman classes to become better acquainted. It also affords an opportunity for the students in this course to keep abreast of developments in the field by including guest speakers in the monthly programs. The professional speakers usually represent all phases of Arboriculture and related fields.

FLORICULTURE CLUB
The Floriculture Club is a student organization designed for the social enjoyment and educational advancement of its members who, for the most part, have interests in Commercial Floriculture. Programs are directed toward a deeper understanding of this field and acquiring practice and dexterity in certain fundamental techniques that are a definite necessity to today's horticultural business person, either florist or landscaper. These techniques are developed through active participation in activities such as the production and sale of corsages for various school functions. These activities add to a member's knowledge of general management, including waste elimination, profits, mark-ups and production.

LABORATORY ANIMAL TECHNOLOGY CLUB
The Laboratory Animal Technology Club combines social, technical and off-campus activities selected to supplement the students' academic activities.

LANDSCAPE OPERATIONS CLUB
The Landscape Operations Club serves stu-

dents majoring in Landscape Operations and those interested in landscaping and ornamental horticulture. Regular meetings are held at which topics of interest are discussed. Outside speakers from nurseries, chemical companies, etc., supplement the factual information of courses with their practical experiences.

TURF MANAGEMENT CLUB

The Turf Management Club was originally organized in 1957 by Henry J. Homan from New London, New Hampshire, a Stockbridge senior. Mr. Homan was also the first editor of *Turf Clippings,* an annual turf magazine in which articles of interest in turf were written by members of the School. The object of this Club is to promote a better understanding of the fundamentals of Agrostology, to recognize the position of the golf course superintendent and to form a bond of interest between the freshmen, seniors and alumni of this School and others in the profession.

LIVESTOCK CLASSIC

The Livestock Classic is a one-and-one-half day event held once a year, usually in April. It is a time when Stockbridge students get together with four-year College of Food and Natural Resources students to compete against one another showing animals. They are judged on their own appearance as well as their animal's appearance and performance and their ability to show and handle their animal. There is no admission fee and all students and the general public are cordially invited.

JUDGING TEAMS

All Stockbridge students are eligible to compete for places on various judging teams which compete with other two-year schools in the New England and New York areas. The contest is usually held in April and includes teams in poultry, dairy products, livestock and dairy cattle.

ATHLETICS

The School has its own separate athletic program with regular schedules in soccer, basketball and golf. The official insignia is the letter "S" for these three sports.

The soccer, basketball and golf teams play mostly with preparatory schools and community college teams in the local area.

NOTE: Stockbridge students are *not* allowed to participate in University of Massachusetts varsity sports. If there is any question on some of the more individual sports like track or cross-country, a student might check with the Physical Education Department. However, to all intents and purposes, we presume it to mean ALL sports. A student, on the other hand, is free to engage in any sport for fun, or in intramural sports.

Also, a student transferring to the University of Massachusetts from Stockbridge has one advantage over transfers from other community colleges. Usually such a transfer must wait one year after transferring to the University before being allowed to participate in varsity sports. A student transferring from Stockbridge may participate in varsity sports the first year.

PHYSICAL EDUCATION

Physical Education is an elective for Stockbridge students. At registration, students may sign up for a Physical Education course of their choice if there are openings. If able to enroll, students must then follow the procedure for adding a course in the Stockbridge School.

FRATERNITY

Alpha Tau Gamma is a social fraternity with a house located at 375 North Pleasant Street. All Stockbridge men are welcome to join during either semester.

SORORITY

Sigma Sigma Alpha involves Stockbridge women in both service and social areas. This sorority has a house at 401 North Pleasant Street. All Stockbridge women are welcome to join during either semester.

CAMPUS CENTER

The Campus Center is available to all students

for recreational purposes. It includes a large auditorium for banquets and movies, the University Store, offices for student activities, meeting rooms, lounges and the Top of the Campus dining room which features very reasonable lunches and dinners. The Campus Center is an informal gathering place for students to meet any day of the week.

UNIVERSITY LIBRARY

The University Library System consists of the 28-story University Library, several branch libraries and various reading rooms. The University Library, the center of all library services on campus, houses the greater part of the 1,450,000 volumes in the 2,000,000 item Library System collection, with emphasis on materials in the social sciences and humanities.

Materials in agriculture are mostly located in the University Library, but much of the science collection is to be found in the two principal branch libraries: the Morrill Biological Sciences Library, on the second floor of the Morrill Science Center, and the Physical Sciences Library, on the second floor of the Graduate Research Center. The holdings of all libraries and reading rooms are listed in the card catalogue on the main floor of the University Library, one floor down from the entrance level. Students may get help in using the library collections from reference staff in the University Library (main floor), and in the branch libraries.

It is hoped that Stockbridge students will use these facilities often, expanding their knowledge while becoming a part of the University community.

HEALTH SERVICES

The University Health Services has been organized to help students and their dependents prevent health problems which might limit the effectiveness of their college experience. Direct services to students and their dependents are supported by the Health Fee.

A staff of physicians, nurses, psychologists, environmentalists, health educators and other personnel are ready to provide comprehensive care in a well-equipped Health Center. Students are encouraged to use the Health Services in the same way they would consult their family physician and would use the community hospital at home.

Please feel free to call if you have questions or special problems or would like to get involved in any of its programs, including the Student Health Advisory Board.

Health Center

Students/dependents who have paid the Health Fee are entitled to a wide variety of services which include 24-hour emergency care, medical office visits with physician or nurse practitioner, specialty clinics, pharmacy, x-ray and laboratory services as ordered by the staff, and bed care in the in-patient unit. A supplementary insurance program is available to cover services not available at the Health Services such as major surgery and out-of-area emergency care.

Dental Care

The Dental Health Division provides emergency dental care and dental education services as part of your health fee. Some routine and restorative care is provided on a fee-for-service basis as time permits. Because staff and facilities are limited, you may be referred to a local dentist or your family dentist for restorative care.

Mental Health

Life at the University can sometimes become a perplexing experience, and students and/or their families may find it helpful to talk out feelings, sort out confusion and develop new perspectives with a member of the Mental Health staff. Social workers, clinical psychologists and psychiatrists are available for short term one-to-one consultations, and they also provide group therapy and couples consultation when appropriate.

Environmental Health and Safety

A substantial effort is made to ensure a safe and healthful environment for all who live or work on campus. Food services, housing, radiation use, building and traffic safety, and fire control are major areas of activity.

Health Education
The Health Education staff offers a variety of programs aimed at developing individual and community responsibility for promoting optimal health. Programs include peer resource training opportunities, community discussions on topics such as nutrition, first aid, sexuality and alcohol and opportunities for consumer activity are promoted.

RELIGIOUS ACTIVITIES

Stockbridge gives support to the religious life of its students by affording the use of University facilities for student groups of all faiths. It cooperates with the official agencies of the three faiths most largely represented at the University by recognizing the contributions of their privately supported chaplains and by giving them facilities and privileges for their work.

On campus, the religious life of Catholic students is enriched by activities and daily and Sunday services at the Newman Center. Jewish students participate in services and activities sponsored by the B'nai B'rith Hillel Foundation. Protestant students are served by the United Christian Foundation, an ecumenical ministry providing counselling services as well as opportunity for involvement in service and social action.

Other religious groups such as the Bahá'í Club, the Christian Science Organization, the Inter-Varsity Christian Fellowship, the Lutheran Club and the Orthodox Club also meet regularly on campus and students interested in their programs are welcome to attend.

The local Protestant and Catholic churches of Amherst provide opportunities for Sunday worship, and Sabbath services for Jewish students are held on Friday evenings. Several denominations sponsor active student programs centered in the local churches, and students are welcome to attend events and join groups sponsored by the denominations.

MOTOR VEHICLES

All student, faculty and staff motor vehicles must be registered with the Parking Office, Room 1, Munson Hall.

Any student may be permitted to have a motor vehicle on campus provided it is registered with the Parking Office and complies with published University regulations. Copies of the University regulations concerning motor vehicles should be obtained at the Parking Office, Room 1, Munson Hall. Students registering their vehicles receive a decal reflecting their parking assignment. The registration of students' vehicles must be done within seven days of their arrival on campus.

Visitors during regular business hours are requested to use the multi-level Campus Parking Garage or parking meters. A University bus service, free of charge, covers the campus and environs.

All parking areas are under roving security surveillance. Visitors may secure information at the Parking Control Booths or at the Security Building.

Inquiries concerning parking should be directed to the Parking Coordinator, University of Massachusetts, Amherst, MA 01003.

Stockbridge Educational Policies Committee

The Stockbridge Educational Policies Committee consists of faculty representing each program of study. They meet on a regular basis with the Director and Associate Director to discuss academic regulations and policies, the academic performance of students as well as recommending students for transfer to the University of Massachusetts. The members are: John W. Denison, *Chairman;* James F. Anderson; Wallace G. Black; Robert T. Duby; George B. Goddard; Gordon S. King; Harold E. Mosher; Iona M. Reynolds; Herbert G. Spindler; Joseph Troll; and two student members with full voting privileges.

Faculty of Instruction

JAMES F. ANDERSON, M.S.
Assistant Professor of Plant and Soil Sciences
French Hall

JOHN H. BAKER, Ph.D.
Professor of Plant and Soil Sciences
Stockbridge Hall

JOHN M. BARDZIK, Ph.D.
Lecturer in Plant and Soil Sciences
French Hall

ALLEN V. BARKER, Ph.D.
Professor of Plant and Soil Sciences and Head of Department
French Hall

WALLACE G. BLACK, Ph.D.
Professor of Veterinary and Animal Sciences
Paige Laboratory

ALFRED W. BOICOURT, M.S.
Professor of Plant and Soil Sciences
French Hall

ANTHONY BORTON, Ph.D.
Associate Professor of Veterinary and Animal Sciences
Stockbridge Hall

WILLIAM J. BRAMLAGE, Ph.D.
Professor of Plant and Soil Sciences
French Hall

WALTER BUMGARDNER, Ph.D.
Assistant Professor of Landscape Architecture and Regional Planning
Curry Hicks Building

JAMES W. CALLAHAN, M.S.
Associate Professor of Food and Resource Economics
Draper Hall

SARAH H. CARLSON, B.S.
Lecturer in Veterinary and Animal Sciences
Stockbridge Hall

JOE T. CLAYTON, Ph.D.
Professor of Food and Agricultural Engineering and Head of Department
Agricultural Engineering Building

BYRON E. COLBY, M.S.
Professor of Veterinary and Animal Sciences
Stockbridge Hall

ALTON B. COLE, M.F.
Assistant Professor of Forestry and Wildlife Management
Holdsworth Hall

LYLE E. CRAKER, Ph.D.
Associate Professor of Plant and Soil Sciences
Stockbridge Hall

BRADFORD D. CROSSMON, D.P.A.
Professor of Food and Resource Economics
Draper Hall

JOHN W. DENISON, Ed.D.
Assistant Dean of the College of Food and Natural Resources and Director of the Stockbridge School of Agriculture
Stockbridge Hall

ELIZABETH DONOHUE, B.S
Lecturer in Veterinary and Animal Sciences
Stockbridge Hall

MACK DRAKE, Ph.D.
Professor of Plant and Soil Sciences
Stockbridge Hall

MARRON S. DuBOIS, B.A.
Instructor in Rhetoric
Stockbridge Hall

ROBERT T. DUBY, Ph.D.
Assistant Professor of Veterinary and Animal Sciences
Hatch Laboratory

HEINRICH FENNER, Ph.D
Associate Professor of Veterinary and Animal Sciences
Hatch Laboratory

JOHN H. FOSTER, Ph.D.
Professor of Food and Resource Economics and Chairman of Department
Draper Hall

THOMAS W. FOX, Ph.D.
Professor of Veterinary and Animal Sciences and Head of Department
Stockbridge Hall

GEORGE B. GODDARD, Ph.D
Associate Professor of Plant and Soil Sciences
French Hall

DUANE W. GREENE, Ph.D.
Associate Professor of Plant and Soil Sciences
French Hall

ROBERT M. GROVER, M.S.
Professor of Veterinary and Animal Sciences
Stockbridge Hall

TOM S. HAMILTON, JR., M.S
Associate Professor of Landscape Architecture and Regional Planning
Wilder Hall

WILLIAM K. HARRIS, D.V.M.
Professor of Veterinary and Animal Sciences
Paige Laboratory

JOHN R. HAVIS, Ph.D.
Professor of Plant and Soil Sciences
Bowditch Hall

FRANCIS W. HOLMES, Ph.D.
Professor of Plant Pathology
Shade Tree Laboratory

THOMAS F. HOUSTON, B.S.
Technical Assistant in Landscape Architecture and Regional Planning
Clark Hall

JOHN C. HOWELL, JR., M.S.
Lecturer in Plant and Soil Sciences
French Hall

WARD M. HUNTING, Ph.D.
Associate Professor of Food Science and Nutrition
Chenoweth Laboratory

ELMAR JARVESOO, D.Agr.Sci.
Professor of Food and Resource Economics
Draper Hall

PAUL H. JENNINGS, Ph.D.
Associate Professor of Plant and Soil Sciences
Bowditch Hall

CURTIS A. JOHNSON, M.S.A.E.
Associate Professor of Food and Agricultural Engineering
Agricultural Engineering Building

ERNEST A. JOHNSON, M.S.A.E.
Associate Professor of Food and Agricultural Engineering
Agricultural Engineering Building

ROBERT L. KENT, JR., M.L.A
Associate Professor of Landscape Architecture and Regional Planning
Wilder Hall

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Professor of Landscape Architecture and Regional Planning
Clark Hall

EDWARD K. KNAPP, Ph.D.
Associate Professor of Food and Resource Economics
Draper Hall

JOSEPH S. LARSON, Ph.D
Professor of Forestry and Wildlife Management
Holdsworth Hall

DEANE LEE, M.S
Associate Professor of Food and Resource Economics
Draper Hall

THEODORE W. LEED, Ph.D.
Professor of Food and Resource Economics
Draper Hall

WILLIAM J. LORD, Ph.D
Professor of Plant and Soil Sciences
French Hall

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Associate Professor of Veterinary and Animal Sciences
Stockbridge Hall

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Professor of Landscape Architecture and Regional Planning and Head of Department
Wilder Hall

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Associate Professor of Food and Resource Economics
Draper Hall

HERBERT V. MARSH, JR., Ph.D.
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Bowditch Hall

DONALD N. MAYNARD, Ph.D.
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Assistant Professor of Veterinary and Animal Sciences
Paige Laboratory

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Professor of Landscape Architecture and Regional Planning
Wilder Hall

MARK S. MOUNT, Ph.D.
Associate Professor of Plant Pathology
Fernald Hall

GUSTAVE D. OLSON, JR., M.R.P.
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Wilder Hall

IONA M. REYNOLDS, M.S.
Assistant Professor of Veterinary and Animal Sciences and Associate Director of the Stockbridge School of Agriculture
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Fernald Hall

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French Hall

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Paige Laboratory

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Associate Professor of Mathematics
Graduate Research Center Tower A

TERRY A. TATTAR, Ph.D.
Assistant Professor of Plant Pathology
Shade Tree Laboratory

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Technical Assistant in Plant and Soil Sciences
French Hall

JOSEPH TROLL, Ph.D.
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Stockbridge Hall

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Stockbridge Hall

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Graduate Research Center Tower A

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Marshall Hall

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Agricultural Engineering Building

JOHN M. ZAK, M.S.
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Stockbridge Hall

Correspondence

Inquiries regarding the Stockbridge School of Agriculture or the College of Food and Natural Resources should be directed as follows:

COLLEGE OF FOOD AND NATURAL RESOURCES
Ross S. Whaley, *Dean*
William J. Mellen, *Associate Dean and Dean of Resident Instruction*

STOCKBRIDGE SCHOOL OF AGRICULTURE
John W. Denison, *Assistant Dean, College of Food and Natural Resources and Director of the Stockbridge School*

Inquiries regarding various phases of the University program should be directed as follows:

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demic Affairs and Provost
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Sally Freeman, *Director of Community Development Center*

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DIRECTORY OF INFORMATION

The University of Massachusetts at Amherst

Those desiring University catalogues giving full information relative to entrance requirements, courses of study, expenses and questions regarding admission to the University at Amherst, either to the freshman class or to advanced standing, should write to the Dean of Admissions, Whitmore Building, University of Massachusetts, Amherst, MA 01003.

The Graduate School

Questions relating to courses offered leading to graduate degrees should be addressed to the Dean of the Graduate School, Graduate Research Center, University of Massachusetts, Amherst, MA 01003.

University of Massachusetts

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This Catalogue was compiled and edited by Elizabeth A. Wiernasz with special thanks to Karen H. Keegan, Associate Director Iona Mae Reynolds and all University Departments concerned (especially the Publications Office) for their help and cooperation.

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4 Astronomy Bldg. C2
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8 Berkshire House B5
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10 Boyden Physical Education Bldg. A4
11 Brett D4
12 Brooks D4
13 Brown E2
14 Business Administration, School of C5
15 Butterfield E5
16 Campus Center (Murray D. Lincoln) C3
17 Campus Center Parking Garage C3
18 Cance A6
19 Cashin E2
20 Central Stores B3
21 Chadbourne E5
22 Chancellor's House E4
23 Chenoweth Laboratory B3
24 Clark Hall D4
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26 Conservation Bldg. D4
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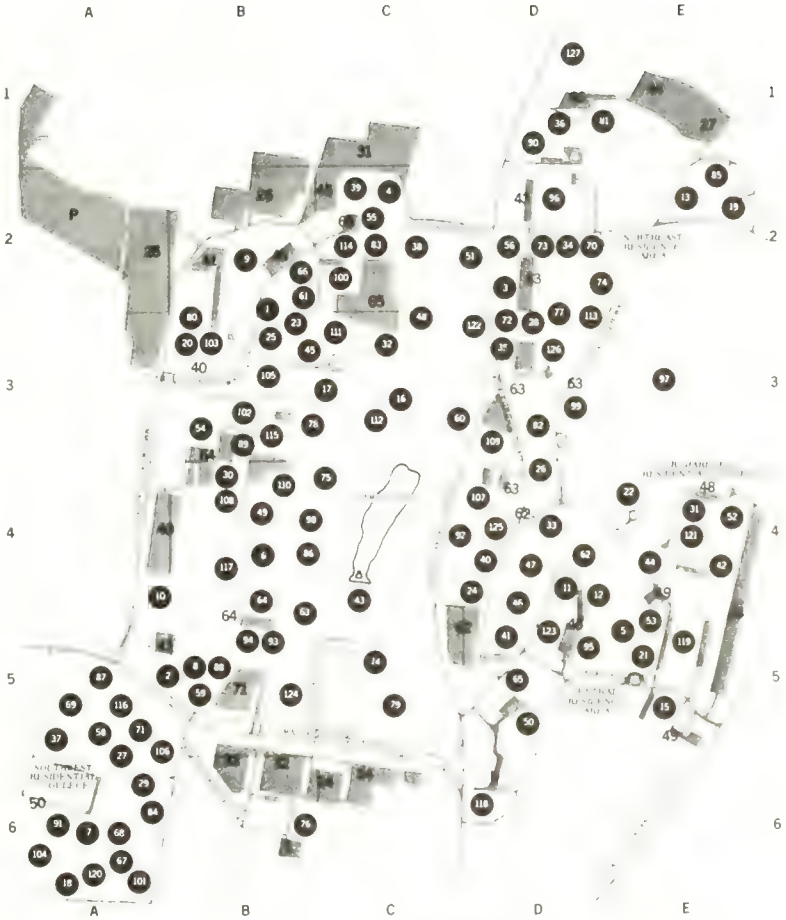
77 Lyon, Mary D3
78 Machmer Hall B3
79 Mahar Auditorium C5
80 Maintenance B3
81 Mark's Meadow Elementary School D1
82 Marshal Hall & Annex D3
83 Marston Hall C2



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85 McNamara E2
86 Memorial Hall B4
87 Melville A5
88 Middlesex House B5
89 Mobile Classrooms B3
90 Montague House D1
91 Moore A6
92 Morrill Science Center C4
93 Munson Hall B5
94 Munson Hall Annex B5
95 New Africa House D5
96 North Physical Education Bldg. D2
97 Observatory E3
98 Old Chapel B4
99 Old Infirmary Group D3
100 Paige Laboratory C2
101 Patterson A6
102 Photo Center B3
103 Physical Plant Bldg. B3
104 Pierpont A6
105 Power Plant B3
106 Prince A5
107 Public Health Center, Western Mass. D4
108 Public Safety (*Dickinson Hall*) B4
109 Skinner Hall D4
110 South College B4
111 Stockbridge Hall C3
112 Student Union C3
113 Thatcher D3
114 Thayer Animal Disease C2
115 Thompson Hall B3
116 Thoreau A5
117 Tobin Hall B4
118 University Apartments D6
119 Van Meter E5
120 Washington A6
121 Webster E4
122 West Experiment Station D3
123 Wheeler D5
124 Whitmore Administration Building B5
125 Wilder Hall D4
126 Worcester Dining Commons (North) D3
127 Wysocki House D1

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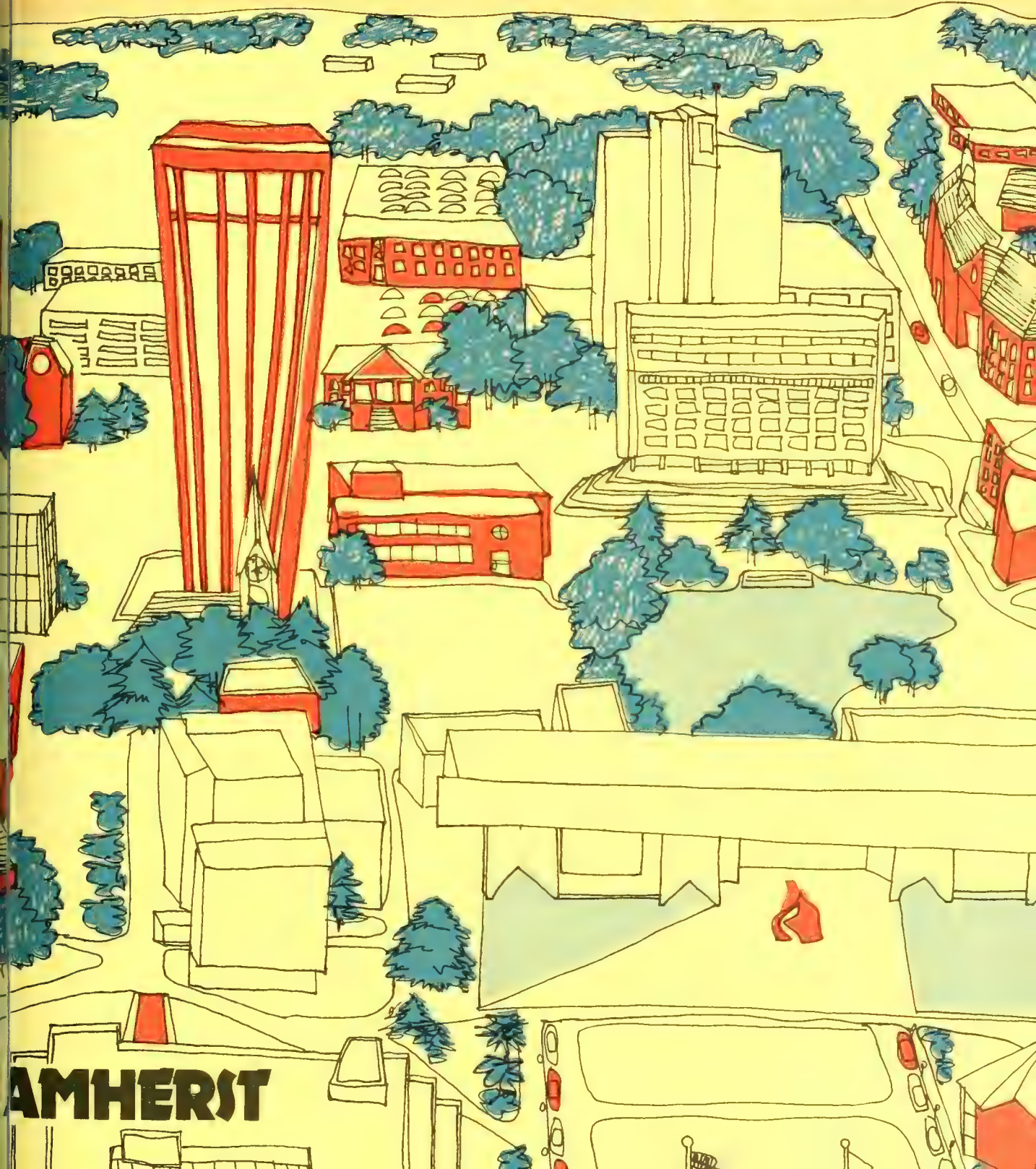

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The University

Founded in 1863, the University of Massachusetts is one of 66 land grant colleges and universities in the United States providing public education, research and service. The University campus in Amherst, situated on 1,100 acres in the picturesque Connecticut River Valley, has approximately 24,000 students and is served by a $200 million physical plant. The University has continually expanded to meet the growing needs of the Commonwealth. The University of Massachusetts at Boston opened in 1965 and currently enrolls approximately 7,000 students. Inaugurated in the fall of 1970, the new University of Massachusetts Medical School in Worcester opened its teaching hospital in 1975.

At Amherst, a broad and continuous program is provided by the undergraduate schools and colleges, the Graduate School and the Division of Continuing Education. Basic units are the College of Arts and Sciences, the College of Food and Natural Resources, and the Schools of Business Administration, Education, Engineering, Health Sciences, and Physical Education. The University also has voluntary Army and Air Force R.O.T.C. programs, an active Phi Beta Kappa chapter, and more than 400 student organizations. Numerous centers, bureaus and institutes actively serve the Commonwealth in such fields as government research, labor relations, natural resources, and population.

The University has joined Amherst, Hampshire, Mt. Holyoke, and Smith Colleges in a Five-College cooperative program, developing numerous academic programs, offering opportunities for course interchange to students, as well as operating a radio station and offering lectures, special courses and inter-library loans.

The University has had an active Summer Session since 1909 and summer study is a long tradition in Amherst. In addition to the many credit-bearing courses, the University has also expanded the educational program to include a full schedule of conferences and institutes, a credit-free workshop series offered by the Division of Continuing Education and cultural events sponsored by many campus agencies including the Arts Extension Service, the Student Activities Office and the Fine Arts Center.

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This Summer Session catalog was coordinated and produced by Susan Black and Ann Pierson.

All information contained herein is subject to existing University regulations at the time of registration.

Factors of race, color, sex, age, religion, national origin or handicap are not considered in the admission or treatment of students or in employment, in accordance with federal and state laws.

The University of Massachusetts is a member of the North American Association of Summer Sessions.

The University of Massachusetts is fully accredited by the New England Association of School and Colleges.

The family educational rights and privacy act (public law 93-380) allows students and former students at educational institutions access to educational records kept on them, and protects basic privacy of these records. The law does not apply to applicants for admission. A list of the types of records maintained by the University, where they are kept, who is responsible for them, who has access to them, and what it will cost to obtain a copy of those records, is available from the Admissions Office in Whitmore Administration Building, the Continuing Education Registrar, Hasbrouck Building, and many other locations across campus.

CALENDAR

MAY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JUNE

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JULY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

AUGUST

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

F Session

FIRST SESSION
SIX WEEKS
MAY 30 THROUGH JULY 11

Thursday, May 18
Deadline for advance mail registration

Tuesday, May 30
Walk-In Registration, All Courses
9 a.m.-1 p.m. and 5-7 p.m., Campus Center Auditorium

Tuesday, May 30
Evening classes, F Session, begin

Wednesday, May 31
Day classes, F Session, begin

Tuesday, June 6
End ADD/DROP period
Last day to sign up for pass/fail and audit options

Tuesday, June 13
End of "W" and "DR" period (withdraw with record)

Tuesday, July 4
Holiday, No classes

Tuesday, July 11
Last day of classes

F Session Refund Schedule

May 31-June 6	60%
June 7-June 13	20%
After June 13	NO REFUND

S Session

SECOND SESSION
SIX WEEKS
JULY 12 THROUGH AUGUST 22

Thursday, June 29
Deadline for advance mail registration

Wednesday, July 12
Walk-In Registration, All Courses
9 a.m.-1 p.m. and 5-7 p.m.
Whitmore Administration Building

Wednesday, July 12
Evening classes, S Session, begin

Thursday, July 13
Day classes, S Session, begin

Wednesday, July 19
End ADD/DROP period
Last day to sign up for pass/fail and audit options

Wednesday, July 26
End of "W" and "DR" period (withdraw with record)

Tuesday, August 22
Last day of classes

S Session Refund Schedule

July 13-July 19	60%
July 20-July 26	20%
After July 26	NO REFUND

REGISTER EARLY AND EASILY REGISTER BY MAIL

X Session

EXTRA SESSION
COURSES OF VARIABLE LENGTH AND STARTING DATES

X SESSION COURSES BEGINNING
MAY 31 THROUGH JULY 11

Thursday, May 18
Deadline for advance mail registration for those X Session courses beginning before July 12

Tuesday, May 30
Walk-In Registration for X Session courses beginning before July 12
9 a.m.-1 p.m. and 5-7 p.m.
Campus Center Auditorium

X SESSION COURSES BEGINNING JULY 12 OR AFTER

Thursday, June 29
Deadline for advance mail registration

Wednesday, July 12
Walk-In Registration
9 a.m.-1 p.m. and 5-7 p.m.
Whitmore Administration Building

All add/drop, withdrawal, pass/fail and audit deadlines for X Session courses will be determined on a proportional basis. See "Course Changes" under Registration Information.

X Session Refund Schedule

Three-week courses

During the first five class days	50%
After the fifth class day	NO REFUND

Twelve-week courses

During the first five days of session	80%
The 6th through the 10th day of session	60%
The 11th through the 15th day of session	40%
After the 15th day of session	NO REFUND

ALL OTHER VARIABLE LENGTH COURSES ON A PROPORTIONAL BASIS

FOR STARTING DATES OF INDIVIDUAL X SESSION COURSES PLEASE SEE THE SCHEDULE OF CLASSES ON PAGE 38

TOWARD TOMORROW 1978

June 16-18, 1978
AMHERST

Speakers
Exhibits
Entertainment
Workshops

Looking into the future

For details, write:

Toward Tomorrow 1978
Hasbrouck Building
University of Massachusetts
Amherst MA 01003

WHO CAN REGISTER?

Any person who has graduated from high school or who has a certificate of general educational development is entitled to enroll in undergraduate courses offered through the Summer Session at the University of Massachusetts/Amherst. The University assumes that the student will accurately assess his or her ability to take a college level course. It is the student's responsibility to observe prerequisites for individual courses.

University of Massachusetts undergraduate students under Academic Suspension for the Fall 1978 semester are not relieved of the necessity to take a semester off from the University because they have taken courses in the Summer Session. The suspension is still operative for the fall semester.

The University invites superior high school students to begin their college education immediately upon graduation by enrolling in the Summer Session. For the highly motivated student, perhaps already convinced that his/her formal education will require graduate or professional studies, an early start may save valuable time. Similarly, students in financial need may find it less expensive to complete their undergraduate education in less than four years. Summer Session attendance can substantially reduce the time necessary to obtain a Bachelor's degree.

A Bachelor's degree is normally required for admission to graduate level courses unless otherwise specified in this catalog or unless written permission to enroll is obtained following counsel with the teaching faculty member.

Enrollment allows a student to take courses, but does not imply acceptance into a degree program at the University of Massachusetts.

HOW TO REGISTER

Advance registration will be arranged for persons submitting their Summer Session registration form by the mail registration deadline appropriate for the desired session. Course registrations and scheduling will be handled on a first come-first served basis. Although every effort is made to accommodate scheduling requests, the University cannot guarantee enrollment in a particular course section. **Early application will help to ensure a preferred schedule and will enable the student to avoid the necessity of attending Walk-In Registration.**

TO REGISTER IN ADVANCE SUBMIT A REGISTRATION FORM BY MAIL WITH FULL PAYMENT TO:

UMass Summer Session
P.O. Box 835
Amherst, MA 01002

A registration form is included in this catalog and may also be obtained from the Registrar's Office, 213 Whitmore Building; from the Graduate School, A245, Graduate Research Center; from the Summer Session Office, 239 Whitmore Building; or from the Division of Continuing Education, Hasbrouck Building, University of Massachusetts, Amherst, MA 01003.

ADVANCE REGISTRATION PROCEDURE: REGISTERING BY MAIL

1. Review and select courses from this Summer Session catalog.
2. Complete Summer Session registration form. Use schedule line numbers and section numbers given in the Schedule of Classes on page 38. Pay particular attention to the letter codes indicating the session (F, S, or X) in which the courses are being offered.
3. Students currently enrolled at the University of Massachusetts (Undergraduate, Graduate, Continuing Education or Boston campus) should include their current student identification number in the appropriate section on the registration form.
4. Mail form and full payment *(excluding lab fees)* to UMass Summer Session, P.O. Box 835, Amherst, MA 01002, keeping in mind deadlines for advance registration.
5. Course changes received prior to the advance registration deadlines will be processed. If received later than the deadline, the student must make the course change at Walk-In Registration.
6. All fees, with the exception of lab fees, must be paid in full at the time of registration.
7. Advance registrations will be confirmed by return mail during the week prior to the beginning of F Session and the week prior to the beginning of S Session. Confirmation will

be mailed to the student's local mailing address if it is a recorded off-campus address, otherwise to the student's permanent home address.

Deadlines for Advance Mail Registration

Thurs., May 18	F Session classes beginning May 30 or 31
Thurs., May 18	X Session classes beginning before July 12
Thurs., June 29	S Session classes beginning July 12
Thurs., June 29	X Session classes beginning July 12 or after

Walk-In Registration

Dates	*Session*	*Location*
Tuesday May 30	F Session, all classes beginning May 30 or 31 X Session, all classes beginning before July 12	Campus Center Aud. 9 a.m.-1 p.m. and 5-7 p.m.
Wednesday July 12	S Session, all classes beginning July 12 or 13 X Session, all classes beginning July 12 or after	Whitmore Building 9 a.m.-1 p.m. and 5-7 p.m.

Independent Study, Special Problems, Thesis and Dissertation Credit

1. Students contemplating Independent Study (396, 696, 796) during the Summer Session and graduate students contemplating Special Problems, Thesis or Dissertation work must obtain the permission of the appropriate department heads and/or advisors.

German & French

GRADUATE READING COURSES

May 31 to July 11

For information write:
Summer Session Credit-Free Catalog
P. O. Box 835
Amherst MA 01002
or contact the appropriate language department.

2. Complete Summer Session registration form. Omit schedule numbers and section numbers. Schedule line numbers will be available at the appropriate departmental offices and at the Summer Session Office, 239 Whitmore Building.
3. Students may register for Independent Study, Special Problems, Thesis and Dissertation any time before the end of the add/drop period for the S Session, July 19, 1978. Payment must be made in full at the time of registration. (A student who fails to register properly for such work will not receive an identification card and is not entitled to use University facilities during the Summer Session.)

EXPENSES

Credit Fees

Undergraduate: $30 per credit
Graduate: $40 per credit

Summer Services Fee

F Session: $42
S Session: $42
X Session: $7 per week

A Summer Services Fee of $7 per credit is required of all students who register only for Independent Study, Thesis, Dissertation or Special Problems.

Additional explanations and information may be found alphabetically under **General Information.**

COURSE CHANGES

Students wishing to add or drop courses, or withdraw from the Summer Session, must formally notify the Summer Session Office in writing by mail or in person during regular office hours. *Notifying the instructor or ceasing to attend class does not constitute official withdrawal.* Failure to use proper procedures could result in an "F" being recorded as a final grade. Students dropping courses during the refund period will receive refunds only if proper procedures are followed.

Course changes may be made at Walk-In Registration or at the Summer Session Office after Walk-In Registration. All add and drop deadlines listed on the next page must be observed.

To change course registration:

1. Review and select courses from this Summer Session catalog
2. Complete Summer Session course Add-Drop form, available at Summer Session Office, 239 Whitmore Building.
3. When adding a course, secure departmental approval signature and have name entered on class roster before having the Summer Session Office review the form.
4. Submit form to the Summer Session Office for review and approval.
5. Pay any remaining bill at the Bursar's Office.

ADD PERIOD DEADLINES

Students may add a course with written permission of the instructor through the first week of classes for courses of six or more weeks duration.* For "F"—**First Session**—courses, the deadline is June 6. For "S"—**Second Session**—courses, the deadline is July 19. "X"—**Extra Session**—courses of at least six weeks duration follow either the F Session deadline (if classes begin prior to July 12) or the S Session deadline (if classes begin July 12 or after). For courses of less than six weeks duration see section below.*

DROP PERIOD DEADLINES

1. All students may drop a course with no record through the first week of classes for courses of six or more weeks duration.*

F Session drop deadline is June 6.
S Session drop deadline is July 19.
X Session on a proportional basis.

2. Undergraduate students may drop a course with a "W" and graduate students with a "DR" from the first week to a period not to exceed one-third of the duration of the course for courses of six or more weeks.*

F Session last day to withdraw is June 13.
S Session last day to withdraw is July 26.
X Session on a proportional basis.

3. Undergraduates who drop courses after the first one-third of the duration of the course will receive an "F" unless a retroactive withdrawal ("W") is approved by the Academic Dean.* Graduate students who drop courses after this period will receive either a "WF" (withdraw failing) or a "WP" (withdraw passing).

The above policy applies to all undergraduate and graduate students attending the Summer Session.

*IN THE CASE OF COURSES OF LESS THAN SIX WEEKS DURATION, ADD, DROP, AND WITHDRAWAL DEADLINES WILL BE DETERMINED ON A PROPORTIONAL BASIS BY THE INDIVIDUAL ACADEMIC DEAN. VISITING SUMMER STUDENTS AND CONTINUING EDUCATION STUDENTS SECURE APPROVAL OF THE DIRECTOR OF SUMMER SESSION, WHITMORE BUILDING.

OVERLOAD OF CREDITS

A maximum course load for the 13-week Summer Session is considered to be 12 credit hours of University work for undergraduates, and nine credit hours of University work for graduate students. Students who wish to register for additional credits must secure approval as follows:

Undergraduates

1. Undergraduates pick up Summer Overload Request form at the Registrar's Office, 213 Whitmore Building.

2. University students secure a signature of their Academic Dean; previously enrolled Continuing Education students secure signature of the Continuing Education Director of Student Services, Hasbrouck Building; visiting students secure signature of the Director of Summer Session, Whitmore Building.

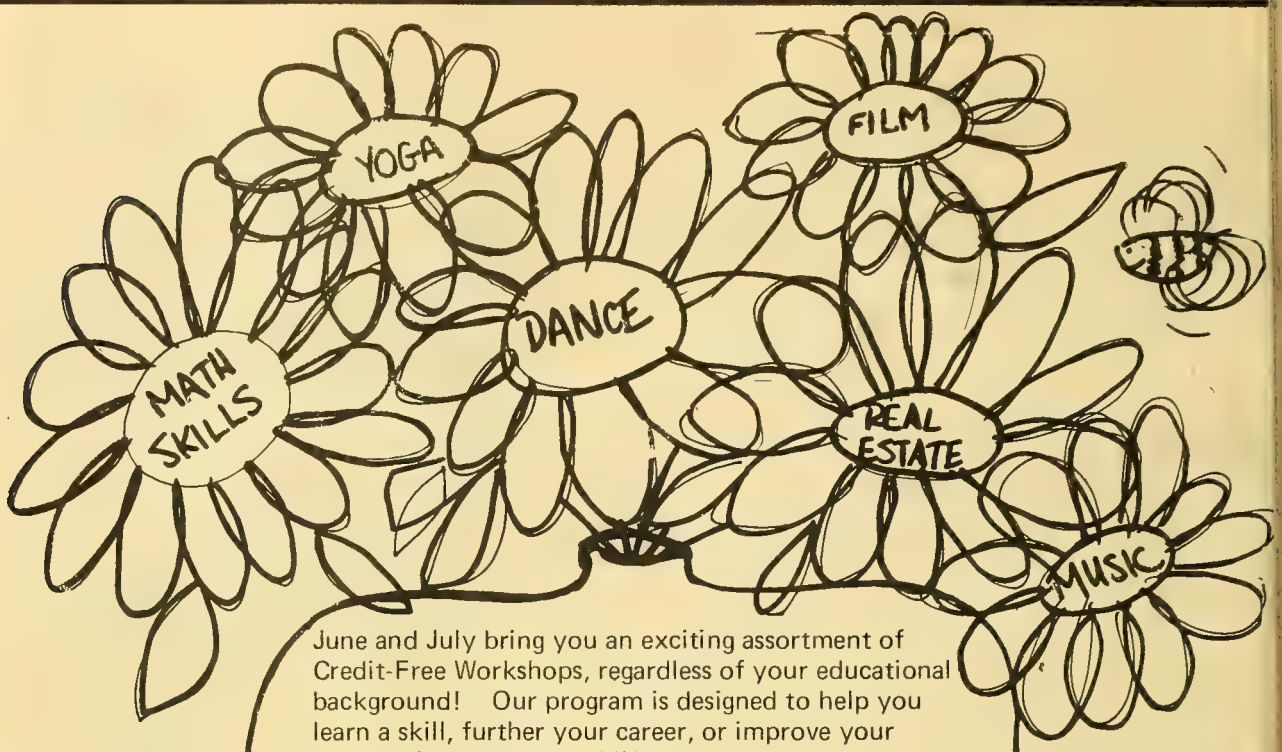
3. Return form to Summer Session Registrar, Whitmore Building.

NOTE: A senior graduating in summer 1978 or January 1979 may register for 15 credits without extra permission.

Graduate Students

1. Secure approval of the Director of Graduate Studies in major department.

2. Return approval to Summer Session Registrar, 239 Whitmore Building.



June and July bring you an exciting assortment of Credit-Free Workshops, regardless of your educational background! Our program is designed to help you learn a skill, further your career, or improve your community and personal life.

For a free catalog with complete information and registration form, please write:

Credit-Free Workshops
P. O. Box 835
Amherst MA 01002

or stop by the Continuing Education Records and Registration Office, 113 Hasbrouck Building on the UMass campus.

Credit-Free Workshop Program

GENERAL INFORMATION ...from A to Z

Advising

General academic advising will be available to Summer Session students from College and School undergraduate academic advising staffs.

Appointments are not necessary in all cases, but are recommended in order to ensure prompt attention. Counseling staff, hours, and locations, as well as telephone numbers are listed below.

College of Arts and Sciences

James W. Shaw, Julie Berwald
Machmer E-20—E-24
545-2191

CASIAC office hours are Monday-Friday, 9 a.m.-4 p.m. Special advising for Summer Session students will be available on Tuesday, May 30, and Tuesday, July 11.

School of Business Administration

Nelson E. Pion, John C. Morand
SBA 211
545-2852
Monday-Friday, 8:30 a.m.-4:30 p.m.

Division of Continuing Education

Joan P. Eignor, Hasbrouck Bldg., 105
545-3430

Harry F. Neunder, Hasbrouck Bldg, 103
545-3430

Garrett J. McAuliffe, Hasbrouck Bldg, 101
545-3430

Advising is available Monday-Thursday, 9 a.m.-7 p.m., and Friday, 9 a.m.-5 p.m.

School of Education

Michael G. Schwartz
School of Education Building, 125B
545-2701

Information and advice on teacher certification programs may be obtained—appointments please. Office hours are Monday-Friday, 9 a.m.-5 p.m. The office will be closed on those days when summer counseling for new students takes place.

School of Engineering

Melton M. Miller
Engineering East 210
545-0302
Monday-Friday, 9 a.m.-5 p.m.

College of Food and Natural Resources

William Mellen, Yvonne Morand
Stockbridge Hall 102
545-1969
Monday-Friday, 8:30 a.m.-4:30 p.m.

Most regularly enrolled students in the College are assigned faculty advisors in their chosen majors. Supplementing this primary advising program is a central, undergraduate academic counseling center located in Room 102, Stockbridge Hall, where all students may acquire general information about academic programs and regulations, and may seek assistance with specific academically related problems.

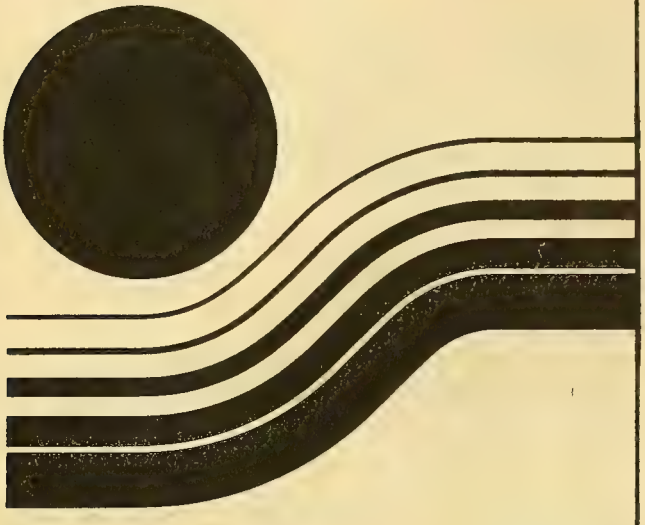
School of Health Sciences

Howard Peters
Public Health N231
545-2177
Monday-Friday, 9 a.m.-4 p.m.

School of Physical Education

Margaret A. Coffey
No. Physical Education Bldg., Rm. 109
545-0529
Hours by appointment.

Ninth Annual International Summer Workshop on Comprehensive, Long-Range Solutions to World-Wide Problems



World Game'78
June 16 to July 24

This year's focus is "Energy and Shelter."

Activities will include:

*Introductory presentations on World Game concepts and methods

*Major speakers such as Buckminster Fuller, Hazel Henderson, Amory Lovins, John Todd and Bruce Anderson

*Representatives from prominent international, national, regional, and local community organizations

*Internships in the development of alternative strategies

*Film and videotape presentations

Up to 3 graduate or undergraduate credits available.

Contact:
Frank McLaughlin, Coordinator
World Game'78
Hasbrouck Building
UMass/Amherst, MA 01003
(413) 545-0474

PRODUCED IN CONJUNCTION WITH
BUCKMINSTER FULLER
AND THE TOWARD TOMORROW PROGRAM/
UNIVERSITY OF MASSACHUSETTS

Auditing

A student who intends to audit a course must register and pay the stated fees. A student may not change from graded status to audit status after the end of the Add/Drop Period. (See **Course Changes** under Registration Information.) Requests for audit status should be submitted to the Summer Session Registrar, 239 Whitmore.

Cancellations

All University Summer Session courses are funded by course fees. In the event that instructional costs cannot be met due to underenrollment, any course may be cancelled at the discretion of the Summer Session Director. Courses numbered 100 through 599 may be cancelled if enrollment does not reach 15 at the end of in-person registration for that course. Courses numbered 600 and above may be cancelled if enrollment does not reach 10 at the end of in-person registration.

Students who are affected by a course cancellation due to underenrollment, and who do not wish to enroll in an alternative course will receive a full refund for the cancelled course.

Credit

All courses offered in the Summer Session carry degree credit and are equivalent to courses offered at the University during the regular academic year unless specified otherwise. Credits obtained in these courses are ordinarily accepted as transfer credits by other colleges and universities.

Students who are registering for graduate level work during the Summer Session and who desire to pursue an advanced degree at the University must file an application for admission with supporting documentation at the Graduate Admissions Office. Once admitted to a degree program, a student may transfer a maximum of six graduate credits earned prior to admission into that program.

Distribution Requirements

Courses which may be applied toward completion of University of Massachusetts distribution requirements are designated by a capital letter, in parentheses, following the course title: Rhetoric (B); Humanities (C); Social/Behavioral Sciences (D); Math/Natural Sciences (E).

Expenses

Credit Fees

Undergraduate: $30 per credit
Graduate: $40 per credit

NOTE: Massachusetts residency does not affect credit fees.

Summer Services Fee

F Session: $42
S Session: $42
X Session: $7 per week

NOTE: The maximum Summer Services Fee charge for a six-week period is $42. Do not pay the fee twice where sessions overlap (e.g., F plus X, S plus X, or Independent Study plus F, X, or S courses).

NOTE: A Summer Services Fee of $7 per credit is required of all students who register only for Independent Study, Thesis, Dissertation or Special Problems. Payment of the Summer Services Fee entitles the student to services and programs provided by the University Health Center, Campus Center and Summer Activities Office. A valid I.D. will be issued following payment.

Laboratory Fees

Laboratory fees are indicated in the Schedule of Classes section of this bulletin. The Summer Session Office reserves the right to add, change or delete laboratory fees when necessary. Students must pay laboratory fees *after* the beginning of the class. Do NOT include this fee with registration payment.

Financial Assistance

Only those students enrolled in Spring Semester '78 at the University of Massachusetts or in the University of Massachusetts' Division of Continuing Education and who are degree candidates *in good academic standing*, will be considered for summer school financial aid. Aid applicants must also carry a minimum of three degree credits per six-week session or six degree credits per 12-week session.

With the exception of funds federally appropriated specifically for Nursing Majors, there are no financial aid funds remaining for the fiscal '78 year. Therefore, no awards can be granted for "F" First Session costs;* and students are advised to apply for Guaranteed Student Bank Loans for those expenses.

However, financial aid in the form of National Direct Student Loans will be available for "S" Second Session costs. To apply, University students should pick up a '78-'79 application packet containing Summer Session aid information at the Financial Aid Office, 243 Whitmore Building. Continuing Education students may obtain application information in 109 Hasbrouck.

All financial aid applicants must register in person at the Summer Session Office, 239 Whitmore, or at any of the scheduled Walk-In Registrations.

*Exception: CE students who used their B.E.O.G. for only ONE semester during academic year 1977-78.

Grades & Transcripts

All grade reports for the Summer Session will be mailed to the permanent address of *undergraduate* students and to the local address of *graduate* students. The mailing will be in late August after the close of the entire Summer Session and transcripts will not be available until this time. Submit transcript requests to the appropriate Records Office as indicated below:

A permanent record of courses taken in the Summer Session will be maintained by the following administrative units:

1. For admitted and visiting undergraduates at the Amherst campus: Amherst Undergraduate Records Office, 213 Whitmore Building.
2. For admitted and visiting graduate students at the Amherst campus and for previously enrolled *graduate* Continuing Education students: Graduate Records Office; Graduate Research Center.
3. For admitted Boston campus students: Boston Campus Records Office.
4. For previously enrolled *undergraduate* Continuing Education students: Continuing Education Records Office, 113 Hasbrouck Building.

Housing

University residence halls will be available to students wishing to live on campus during the Summer Session. Please fill out the application form on page 25 and mail, no later than May 15, 1978 to: Summer Housing Office, 920 Campus Center, University of Massachusetts, Amherst, MA 01003.

Residence halls will be open for occupancy on Tuesday, May 30. Dorm assignments and keys may be obtained at the 3rd level Registration Office in the Campus Center on Tuesday, May 30, and Wednesday, July 12, from 9 a.m. to 5 p.m. each day.

All residence hall rooms are provided with basic furniture, including beds and mattresses, desks, desk chairs, and waste bas-

kets. Each student is responsible for providing ashtrays, pillows, bed linen, blankets and towels. Linen packets (two sheets, pillow case and two towels) are available at a cost of $5 for the first package and an additional $2.50 for each weekly exchange.

I.D. Cards

University Students

Regularly enrolled Undergraduate, Graduate, Continuing Education and Boston campus students may obtain a Summer 1978 *validation sticker* for their picture identification cards at the I.D. Office which will be located in 169 Whitmore until May 26 and located in Crabtree House beginning June 2. Office hours are Monday through Friday, 9 a.m. to 4 p.m. Validation stickers will also be available at any of the scheduled Summer Walk-In Registrations. Students are required to pay the Summer Services Fee and must present either their summer schedule card or the stamped copy of their registration form as proof of registration.

Visiting or New Students

Summer visiting or new students may have pictures taken for *temporary summer identification cards* at the I.D. Office which will be located in 169 Whitmore until May 26 and located in Crabtree House beginning June 2. Office hours are Monday through Friday, 9 a.m. to 4 p.m. Pictures will also be taken at all of the scheduled Walk-In Registrations except the July 12, 5-7 p.m. period. Students are required to pay the Summer Services Fee and must present their summer schedule card or the stamped copy of their registration form as proof of registration, as well as one other form of identification. Students who have not registered in advance (Mail Registration) must wait 24 to 48 hours after completing registration for the assignment of a student number *before* they may have their I.D. picture taken. I.D. cards may be picked up at the I.D. Office 24 hours after having the picture taken. There is a $1 charge for picture I.D. cards.

Parking & Buses

Vehicles registered with the Parking Office displaying a current parking decal may park in their assigned lot or any edge lot.

Unregistered vehicles should be registered with the Parking Office, Room 1, Munson Hall; office hours are 8:30 a.m. to 4 p.m. The registration fee of $5 enables the vehicle to use all edge lots: 21, 22, 23, 24, 25, 26, 31, 32, 34, 44, 46, 47, 48, 49, 50. If an individual wants to register a vehicle for a core lot, the cost is a $5 registration fee plus the monthly convenience fee of $3 for a core lot, and $4.20 for lot 71.

The Student Senate Transit Service will provide regularly scheduled no fare bus transportation during the Summer Session. It is anticipated that buses will serve students commuting from Belchertown, South Amherst, North Amherst, Sunderland South Deerfield and points in between on all weekdays when classes are in session. Sufficient buses will be scheduled to transport students to the campus in the morning, to outlying points, return at midday, and home at the end of the day. For bus service information, call 545-0056.

Pass/Fail

A regularly enrolled undergraduate student must be enrolled for six credit hours during the Summer Session to use his/her pass/fail option, unless he or she is an Education major. A non-Education major taking a course in Education may elect one other outside pass/fail course. Graduate students wishing to use the pass/fail option should consult both the

The Department of Theater and

The Commonwealth Stage

provide credit internship programs in STAGE PRODUCTION and MANAGEMENT FOR THE THEATER. Inquiries are welcomed by the Production Manager of the Department of Theater, Fine Arts Center, Room 112, Telephone 545-3490.

Graduate School and the appropriate academic department. *Pass/fail requests must be submitted to the Summer Session Registrar by the end of the Add/Drop period. (See* **Course Changes** under Registration Information.)

Pass/Fail, School of Education

All courses given under the supervision of the School of Education, both graduate and undergraduate, are graded on a pass/fail basis only. This is not optional on the part of the student except in the following special case. Master's Degree students enrolled at the University of Massachusetts are required by Graduate School policy to earn 18 graded credits during their 33-hour Master's program. A student eligible to receive a letter grade should make the request known to the instructor early in the semester so that the grade may be added to the roster at the end of the course.

Please do not request exceptions to the pass/fail policy. The School of Education understands that there may be a number of institutions which simply do not accept the pass/fail mark. In these cases, the student should contact the instructor and request a letter which states that the School of Education is on a pass/fail basis but indicates what the grade would have been if the student had been taking the course for a letter grade.

If further information is desired regarding the School of Education pass/fail policy, call or write Michael G. Schwartz, 125B School of Education, University of Massachusetts, Amherst, MA 01003, phone 545-2701.

Recreation & Intramurals

A $5 General Recreation and Intramural Fee entitles the student to participate in the Summer Intramural Program as well as the use of all Physical Education facilities (gym, handball courts, pool, tennis courts, weight room, etc.) as scheduled.

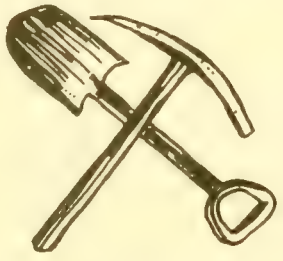
Shorts, socks, T-shirts, and towels will be available and a basket may be obtained on a space-available basis. All services and facilities are regulated by the Department of Athletics/Intramurals.

Payment of the fee should be made at the Bursar's area during registration or at the Bursar's Office, Whitmore Building, following registration.

A Summer '78 sticker will be issued which must be affixed to each student's valid University I.D. Card.

REGISTER BY MAIL

Anthropology 577 Archaeological Field School



June 5 through July 14

Enrollment is limited and for undergraduates only. Contact Mary Lou Curran, Department of Anthropology, 215 Machmer Hall, UMass/Amherst, or call (617) 448-6388 weekends.

Also, please see course description, page 17.

Applications DUE BY April 15

Refund Schedule

F Session

May 31-June 6	60%
June 7-June 13	20%
After June 13	NO REFUND

S Session

July 13-July 19	60%
July 20-July 26	20%
After July 26	NO REFUND

X Session

Three-week courses

During the first five days of session	50%
After the fifth day of session	NO REFUND

Twelve-week courses

During the first five days of session	80%
The 6th through 10th day of session	60%
The 11th through 15th day of session	40%
After the 15th day of session	NO REFUND

ALL OTHER VARIABLE LENGTH COURSES ON A PROPORTIONAL BASIS

Textbooks

Most textbooks required for summer classes are sold at the Textbook Annex located on the top floor of the Physical Plant Building. Students may purchase books either on a cash basis or with checks, provided that they have a valid UMass Summer ID. No credit cards are accepted.

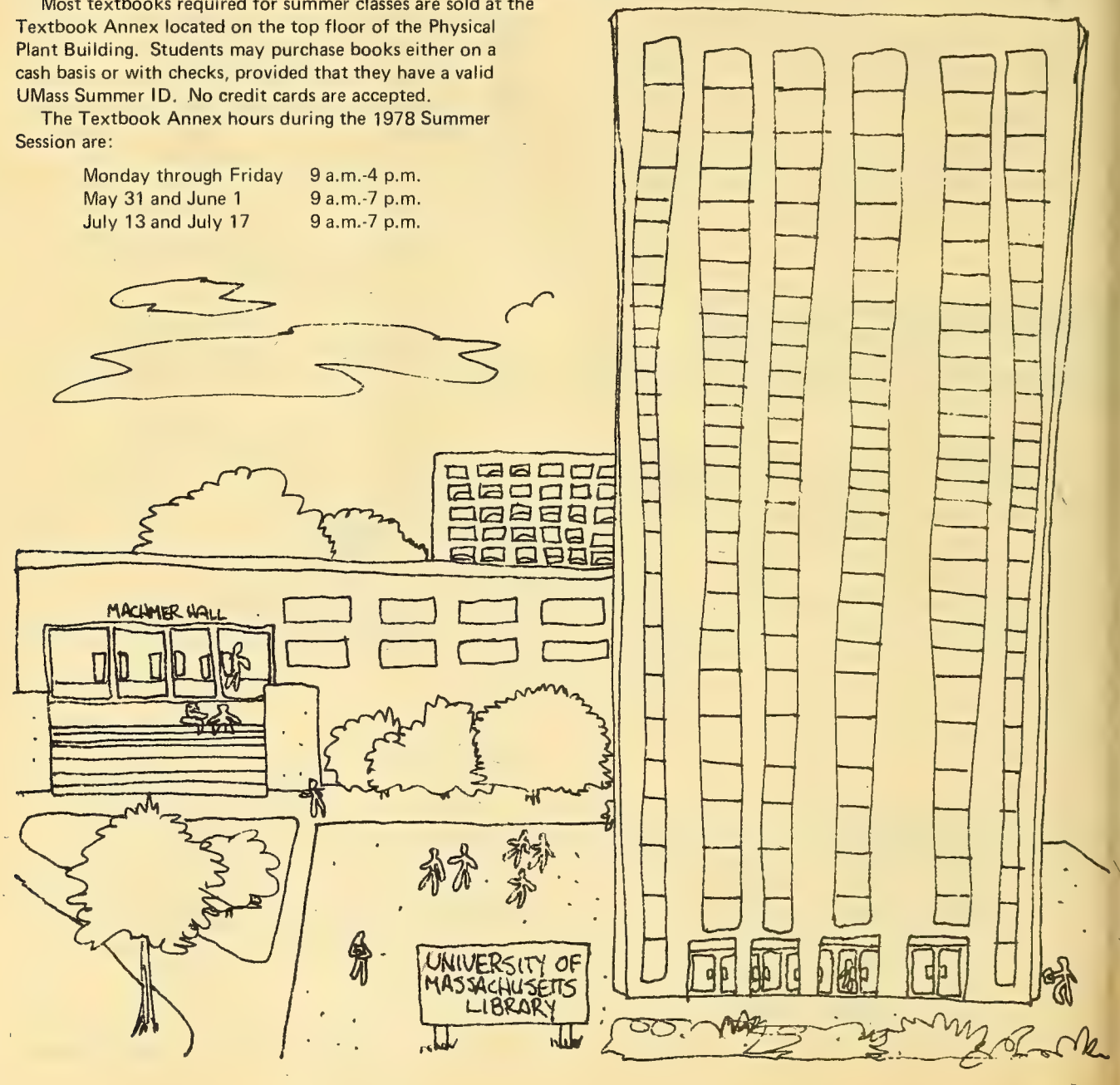
The Textbook Annex hours during the 1978 Summer Session are:

Monday through Friday	9 a.m.-4 p.m.
May 31 and June 1	9 a.m.-7 p.m.
July 13 and July 17	9 a.m.-7 p.m.

Veterans Affairs

Veterans are eligible to receive full-time benefits for carrying a minimum of four credits during F Session (May 30 through July 11), and four credits during S Session (July 12 through August 22). If a veteran takes less than the minimum amount of credits for full-time status, his/her monthly benefits will be adjusted accordingly.

To receive these benefits, veterans should contact the Veterans Affairs Office, Room 236, Whitmore Building, phone 545-1346, eight to ten weeks prior to the beginning of the particular summer session to allow ample time for processing paperwork.



leonard bernstein festival
of american music

june 29-july 23, 1978

Offering performances and workshops designed to create a total environment of the finest in American music and Jazz.

See Course Descriptions on page 31.

Contact:

Susan Huetteman
Administrator of Workshops
The Leonard Bernstein Festival of American Music
Fine Arts Center
University of Massachusetts
Amherst, MA 01003
Telephone: (413) 545-0519

fine arts center
university of massachusetts at amherst

COURSE DESCRIPTIONS

There are two main summer sessions, each six weeks in duration. In the COURSE DESCRIPTION section which follows, the sessions are designated by the capital letters in parentheses following the course description. The first session is designated "F" and the second session is designated "S". Courses which do not conform to the standard calendar are designated "X" and exact dates and times are specified in the SCHEDULE OF CLASSES section of this catalog.

IT IS THE STUDENT'S RESPONSIBILITY TO SELECT COURSES WITH SCHEDULES THAT DO NOT CONFLICT.

Courses are listed in the following manner:

001-099	Non-Degree
100-199	Introductory lower division
200-299	Other lower division
300-399	Upper division, junior/senior
400-499	Upper division, senior
500-599	Combined graduate/undergraduate
600-699	Master's or first year graduate
700-899	Doctoral and advanced graduate
900-999	Post-terminal degree

All courses carry three credits unless otherwise indicated. In cases where the number of credit hours is variable, the student and the instructor must agree on the number of credits to be earned. The student must indicate the desired number of credits on the registration application.

Courses carry no prerequisite unless specified in the course description.

Courses which may be applied toward completion of UMass DISTRIBUTION REQUIREMENTS are designated by a capital letter, in parentheses, following the course title.

In the event that instructional costs cannot be met due to underenrollment, any course may be cancelled at the discretion of the Director of the Summer Session. Sections may be added or deleted according to enrollment demands. Instructors may be substituted without formal notification to students.

ACCOUNTING

Introduction to Accounting I
ACCTG 221
Principles underlying the preparation of financial statements. (F, S)

Introduction to Accounting II
ACCTG 222
Continuation of 221. Emphasis on development and application of accounting data for planning and control. (F, S)

Financial Reporting I
ACCTG 321
Intensive examination of fundamental concepts underlying financial reporting. Current literature dealing with effects of alternative methods upon measurement of periodic income. Prerequisite: ACCTG 222. (F)

Financial Reporting II
ACCTG 322
Continuation of 321 and intensive examination of current authoritative pronouncements in accounting principles. Prerequisite: ACCTG 321. (S)

Federal Income Tax Procedure
ACCTG 371
Federal income tax laws and regulations as they affect individuals; preparation of tax returns. Prerequisite: ACCTG 221 or permission of instructor. (F)

ANIMAL SCIENCE

Introductory Animal Science
AN SCI 101
Modern animal and poultry science and the many scientific disciplines it encompasses. The poultry, dairy, meat, recreational and laboratory animal industries in terms of national and world economics and their role in serving mankind. (F)

Equitation Skills
AN SCI 150 Riding, Beginner I. Credit: 1. (F, S)
AN SCI 151 Riding, Beginner II. Credit: 1. (F, S)
AN SCI 152 Riding, Intermediate I. Credit: 1. (F, S)
AN SCI 153 Riding, Intermediate II. Credit: 1. (F, S)

Special Problems in Training the Horse
AN SCI 241
A survey of basic training techniques. The methodology and philosophy of training horses from the ground. Major topics are lungeing, long reining, backing the horse, and schooling over fences. Related training topics. Prerequisite: AN SCI 152 or permission of instructor. (F)

Advanced Horse Management
AN SCI 359
The nutrition, physiology, genetics, reproduction and health of the horse. Limited to Animal Science majors or by permission. Credit: 4. (F)

Principles of Animal Nutrition
AN SCI 430
Scientific principles of nutrition in both ruminants and nonruminants. Prerequisites: Introductory Biology, Biochemistry, and AN SCI 420 or 421, or permission of instructor. (F)

ANTHROPOLOGY

Introduction to Archaeology (D)
ANTH 102
The history, methods and theory of archaeology, with an outline of the main characteristics of the prehistoric record throughout the world. (F)

Introduction to Physical Anthropology (E)
ANTH 103
Human evolution, human variation, racial classifications, racism, and modern theories of variation. (S)

Introduction to Cultural Anthropology (D)
ANTH 104
Social and cultural anthropology dealing with variations among societies in technology and economics, social and political organization, art, religion, and ideology. (F)

Archaeological Field School
ANTH 577
A study of prehistoric settlement patterns in the Lower Ashuelot River Valley: archaeological survey in Swanzey, N.H. Students learn a wide range of skills in a six week field school in survey and excavation: research design, mapping, site and artifact identification, cataloging and recording techniques. The methods stressed will be applicable to contract survey work and environmental impact assessment in the Northeast. Field transportation and equipment provided. On-site housing cost is approximately $60 for duration of study. Additional Field School charge: $10. Credits: 6, undergraduates only. Applications obtained from Mary Lou Curran, Dept. of Anthropology, due April 15. (X)

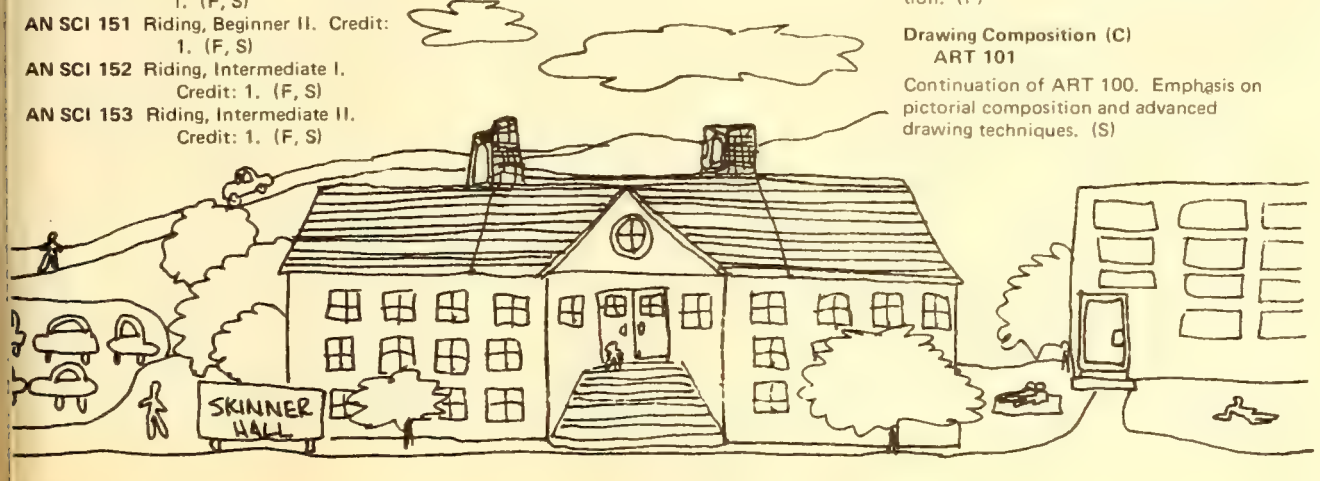
leonard bernstein festival
of american music

presents
WOODY HERMAN and
the YOUNG THUNDERING
HERD and THAD JONES/
MEL LEWIS QUARTET
july 9, 1978 8:00 pm
fine arts center concert hall
ticket information call (413) 545-0022

ART

Basic Drawing (C)
ART 100
Drawing in black and white, applying pencil, crayon, charcoal techniques to representation in line and tone, emphasizing sound observation and effective presentation. (F)

Drawing Composition (C)
ART 101
Continuation of ART 100. Emphasis on pictorial composition and advanced drawing techniques. (S)



Basic Design I (C)
ART 102

Two-dimensional design concepts arising out of work with specific problems in a variety of media. (F)

Basic Design II (C)
ART 103

Continuation of ART 102. Specific three-dimensional problems, stressing the interrelationship of materials, processes, techniques, and sculptural concepts. Prerequisite: ART 101. (S)

Photography I
ART 230

Introduction to basic black and white photo skills, prints, developing of film and proper use of darkroom and photographic equipment. Design and aesthetic appreciation. Requires an adjustable 35mm camera. (S)

Interior Design I
ART 250

Introduction to graphics, interior layouts, normative and descriptive elevations, 2- and 3-point perspective drawing, architectural measuration and theory of proportion. Prerequisites: ART 100 and 101 or permission of instructor. (F)

Ceramics I (C)
ART 280

Involvement with form through the use of clay and related materials. Hand-building and work on the potter's wheel stress a creative, aesthetic approach and related ceramic history. Prerequisite: ART 100 and 101. (F)

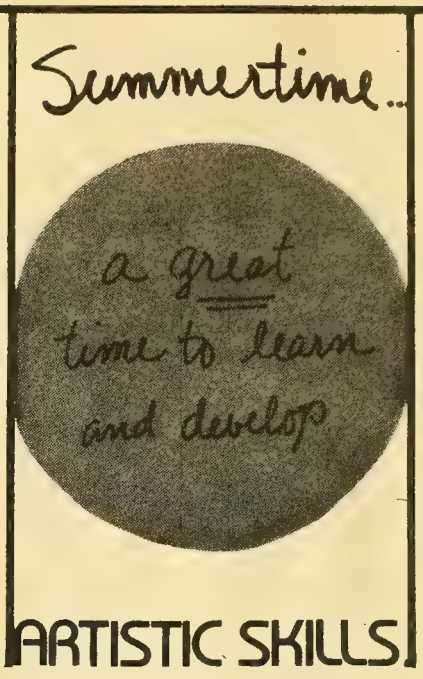
Interior Design III
ART 350/550

Planning, design, analysis and programming of interior spaces both residential and public. Interior materials, uses, applications, specifications and schedules. Prerequisites: ART 250 and 251 or equivalent. (F)

ART HISTORY

Modern Art, 1880-Present (C)
ART HIS 522

Major artists and developments from Post-Impressionism to the present. Undergraduate credit only. (S)



American Art (C)
ART HIS 526

The earliest colonial art, the impact of later European influences, regional art of the 19th and 20th centuries, and contemporary developments. Undergraduate credit only. (F)

ASTRONOMY

Exploring the Universe (E)
ASTRON 100

Not open to Physical Science or Engineering majors. The earth, its structure and age, the moon, the sun, other planets and the origin of the solar system. Stars and galaxies, their birth and death. The universe, its structure and evolution. Supplemented by occasional hours of evening observation. (F, S)

BUSINESS ADMINISTRATION

Introduction to Computers for Business
BA 210

The BASIC and FORTRAN computer programming languages. Emphasis on use of the computer for business data processing and problem solving. (F, S)

Business Policy and Strategy
BA 497

An integrative case course requiring identification and possible solution of practical problems encountered by general managers who are responsible at various organizational levels for formulating strategies and their successful implementation. (S)

BIOCHEMISTRY

Elementary Biochemistry (E)
BIOCHM 420

The more important facts relating to the chemistry and metabolism of biological materials. Prerequisite: CHEM 250 or 261. (F)

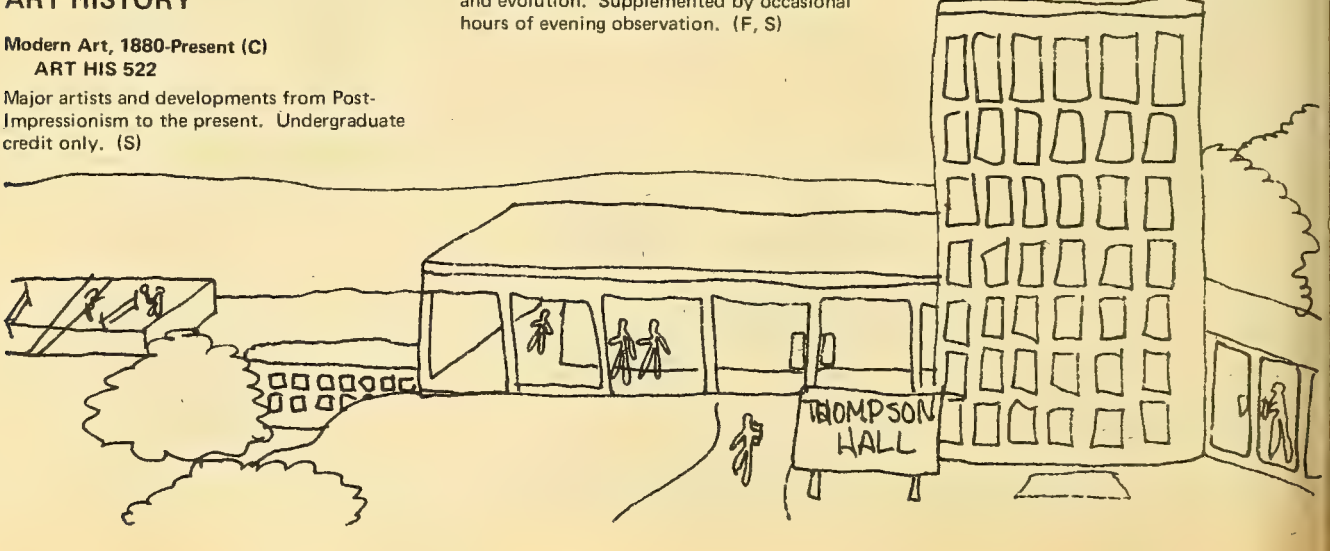
Elementary Biochemistry Laboratory
BIOCHM 421

The laboratory for BIOCHM 420. Prerequisite: CHEM 250 or 261. Credit: 1. (F)

BOTANY

Field Botany
BOTANY 191A

Introduction to the local flora; some experience in identifying plants. Field trips to several plant communities; ecological factors influencing their development. (F)



CIVIL ENGINEERING

Statics
CE 240

Force systems, friction, first and second moments. (F)

Strength of Materials I
CE 241

Simple and combined stresses and strains in tension, compression, and shear; torsion; stresses and deflections in beams. Prerequisite: CE 240. (F)

CHEMISTRY

General Chemistry (E)
CHEM 110

The fundamental chemical laws and theories. A one-semester coverage of general chemistry that meets minimum prerequisite requirements of CHEM 250, but not of CHEM 227. Previous knowledge of chemistry not required. (S)

General Chemistry (Sci) (E)
CHEM 111

The first course of a two-semester sequence (111, 112) covering fundamental chemical laws and theories. For students planning to take advanced courses in chemistry. (F)

General Chemistry (Sci) (E)
CHEM 112

Continuation of CHEM 111. Prerequisite: CHEM 111 or equivalent. (S)

Organic Chemistry (E)
CHEM 250

A one-semester coverage of organic chemistry. Concurrent enrollment in CHEM 252 required. Prerequisites: CHEM 110 or 112. (S)

Organic Chemistry Lab
CHEM 252

Laboratory applications of the chemistry taught in CHEM 250. Concurrent enrollment in CHEM 250 required. Credit: 1. (S)

Organic Chemistry (E)
CHEM 261

The first of a two-semester sequence (261, 262) surveying the principal classes of organic compounds and their reactions, with emphasis on the relation between structure and reactivity. Concurrent enrollment in CHEM 263 required. Prerequisites: CHEM 112 or 114. (F)

Organic Chemistry (E)
CHEM 262

Continuation of CHEM 261. Concurrent enrollment in CHEM 264 required. Prerequisite: CHEM 261 or equivalent. (S)

Organic Lab
CHEM 263

The experimental techniques of organic chemistry. Concurrent enrollment in CHEM 261 required. (F)

Organic Lab
CHEM 264

Continuation of CHEM 263. Concurrent enrollment in CHEM 262 required. Prerequisite: CHEM 263 or equivalent. (S)

leonard bernstein festival
of american music

presents
EUGENE FODOR,
violinist
July 8, 1978 8:00 pm
fine arts center concert hall
with the festival orchestra
under the direction of robert gutter
ticket information call (413) 545-0022

COMPUTER & INFORMATION SCIENCE

Computers and Science (E)
COINS 102

The use of computers to solve social problems. Topics like data banks, security, computerized voting, automated health care, computer-aided instruction. The long-range impact of computers. (F)

Introduction to Problem Solving Using the Computer (E) COINS 122

Problem solving and FORTRAN programming for students from all disciplines. Concepts associated with problem solving valid for many types of problems. Use of FORTRAN on the KRONOS time-sharing system. Laboratory included. Credit: 4. (X)

COMMUNICATION DISORDERS

Differential Diagnosis of Speech and Language Pathologies COMDIS 614

Review, analysis and demonstrations of diagnostic procedures for assessment and evaluation of speech and language disorders. Prerequisites: COMDIS 210 or 416 or equivalent. (X)

Clinical Practicum—Audiology
COMDIS 698A

Supervised clinical practice with children and adults with various speech, language, and hearing disorders; group and individual therapy techniques; on-campus and off-campus experiences. (X)

Clinical Practicum—Speech Pathology
COMDIS 698S

Supervised clinical practice with children and adults with various speech, language, and hearing disorders; group and individual therapy techniques; on-campus and off-campus experiences. (X)

COMPARATIVE LITERATURE

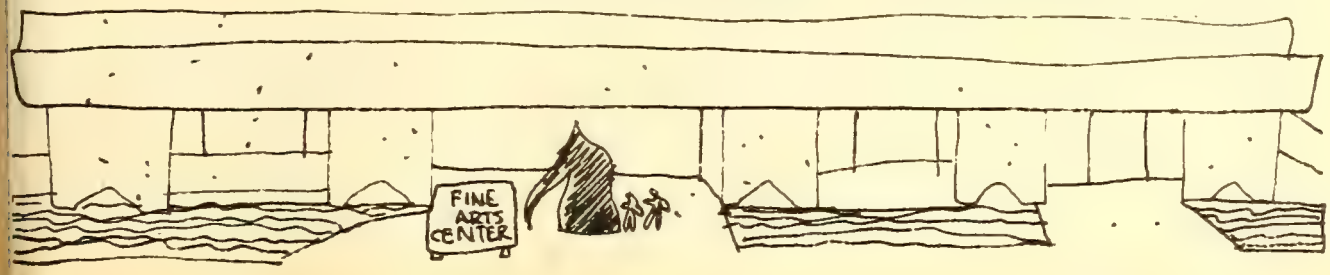
Introduction to Comparative Literature: Myth, Fairy Tale and Children's Literature (C) COMLIT 101

Literature as one of the modes of cultural expression. Some basic myths and folktales and their use in classics of children's literature. Social and psychological, as well as strictly literary, approaches. Readings include classical and Norse myths; Aesop; Grimm; Hans C. Andersen. (F)

COMMUNICATION STUDIES

Introduction to Mass Communications (D)
COMSTU 121

Overview of history, development, structure, roles, and functions of mass communications. Standards for evaluation of the mass media and understanding their role in society. (S)



Media Production
COMSTU 221

The basic processes by which media (radio, television, film) content moves from idea through the creative process to finished program. (F)

Modes of Film Communication
COMSTU 240

Introduction to the nature and functions of film narrative and non-narrative approaches to film communication. A basic grounding in design and function of contemporary film forms. (F)

Interpersonal Communication (C)
COMSTU 250

Theoretical and practical understanding of interpersonal communication processes. Emphasis on the behaviors of everyday verbal and nonverbal communication that affect ourselves, others, society, and future communication. (F, S)

Small Group Communication
COMSTU 252

The theory and process of small group communication. Emphasis on task and interpersonal aspects. Practical application through small group experiences. (F)

Seminar in Mass Communication: Children and Television COMSTU 491C

Children's uses of television and its impact on their development. Topics include programming, anti-social and pro-social TV programming effects, education, socialization and advertising. Emphasis on the behavioral influences of TV programming on children. Prerequisite: permission of instructor. (S)

Seminar in Mass Communication: Mass Media and the Classroom
COMSTU 791C

Evaluation of the nature, trends, and effects of television and other mass media in relation to the educational process. Experimentation and exposure to practical aspects of the media and their use in education. Emphasis is on student needs and interests. Workshop, laboratory, and seminar approaches. Prerequisite: permission of instructor. (X)

ECONOMICS

Introduction to Microeconomics (D)
ECON 103

Introductory analysis of resource allocation and income distribution through microeconomic theory. Specific problems illustrate the use of the theoretical precepts developed. (F)

Introduction to Macroeconomics (D)
ECON 104

Theory of the behavior of the American economy. Emphasis on the goals of full employment, price stability, economic growth and balance of payments equilibrium. (S)

Intermediate Microeconomic Theory
ECON 203

Microeconomic analysis of consumers, firms, industries, and markets; rational decision-making under conditions of certainty; balancing forces in a free enterprise economy. Prerequisite: ECON 103 and 104. (F)

Intermediate Macroeconomic Theory
ECON 204

Formulation and empirical testing of static and dynamic theories of aggregative income, employment, and prices with reference to fluctuations, growth, and economic forecasting. Prerequisite: ECON 103 and 104. (S)

EDUCATION

DIVISION OF HUMAN SERVICES AND APPLIED BEHAVIORAL SCIENCE

Humanistic Alternatives in Classroom Management EDUC H490 I

Includes exposure to a variety of classroom management programs and models which share a commitment to the growth, fulfillment and self-actualization of both teacher and student (or parent and child). A primary goal is to provide an alternative to punitive and coercive means of discipline. Experiential presentations of the ideas of Thomas Gordon (P.E.T., T.E.T.), Haim Ginott, Dreikuss, Glasser and others. Learning objectives for the course emphasize developments of classroom skills as well as understanding of the theoretical foundations of the models presented. Graduate credit not available. (S)

Cognitive Activities in Early Childhood Education EDUC H591A

A workshop in ECE; methods, materials, and curricula for the promotion of cognitive goals in ECE. Emphasis on such topics as language development activities, developing number concepts, problem solving, etc. Participants develop materials as well as examine and experiment with ideas presented by the staff. Opportunity for the observation of children available; practice possible also. For practitioners. Designed to follow the workshop, *Creative Activities in ECE.* Students are encouraged to register for both workshops, but may register for either. (X)

Creative Activities in Early Childhood Education EDUC H591B

A workshop in ECE stressing methods, materials and curricula. Emphasizes the creative arts—painting, clay, drama, movement, blocks, etc.—commonly found in early education programs. A hands-on experience; participants design, develop and test materials, methods, and other experiences suitable for young children. Opportunity for observation and perhaps practice with children. For practitioners. Designed as the first of two related ECE workshops. A workshop on *Cognitive Activities in ECE* will follow, beginning on August 2. Students are encouraged to register for both but may register for either. (X)

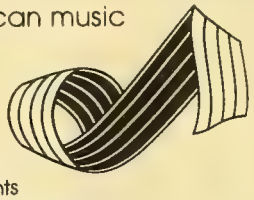
School Counseling Theory
EDUC H605

Counseling theory and research evaluation. Methodology, philosophies, ethics, problems, and issues of school counseling. Prerequisites: EDUC H377, and at least one hour of credit in EDUC H701. (X)

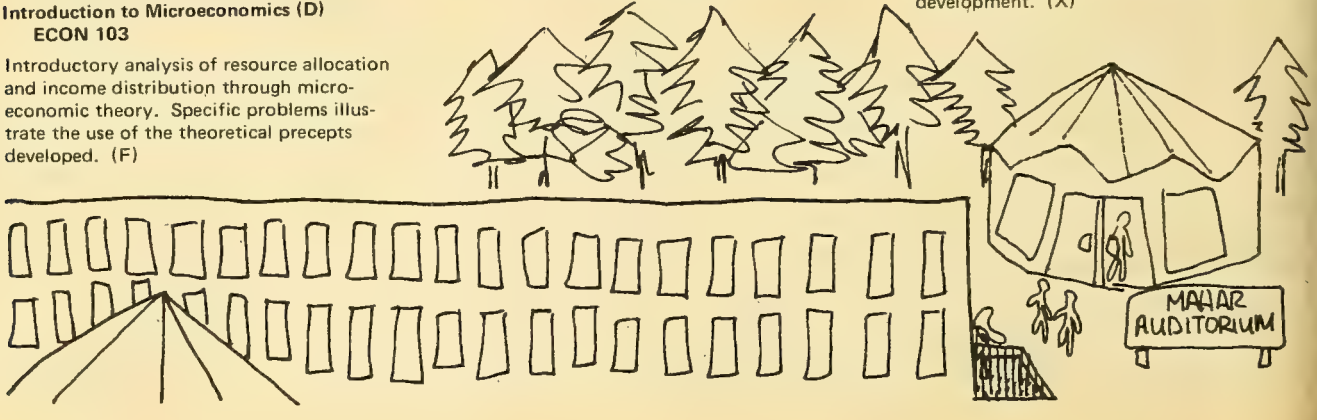
Laboratory for Counseling Skills
EDUC H631

The general nature of theory construction, levels of explanation, relationships of philosophy, psychology and sociology, various methods of facilitating human growth and development. (X)

leonard bernstein festival
of american music



presents
LUKAS FOSS,
pianist & conductor
july 14, 1978 8:00 pm
fine arts center concert hall
with the festival orchestra
ticket information call (413) 545-0022



Principles of School Guidance
EDUC H677

The nature of guidance and its need in the schools with an overview of an adequate guidance service for a school system. (X)

Family Counseling I
EDUC H747

A variety of modes of assessment in family counseling. Lectures, demonstrations, video-tapes, exercises and readings. Application of learnings to actual family interviews and ones own family-of-origin. Undergraduates eligible with consent of instructor. (F)

DIVISION OF INSTRUCTIONAL LEADERSHIP

Reading Instruction: Principles and Strategies EDUC I428

Designed to provide prospective teachers with an introduction to the teaching of reading in public schools. Includes a critical overview of reading approaches, methods, and materials as well as an examination of selected theories and issues in reading. Undergraduate credit only. (F)

Principles and Methods of Teaching Reading and Language Arts in the Elementary Schools EDUC I461

Approaches to the teaching of reading and language arts in elementary schools. Innovations in methods and materials. (X)

Methods in Teaching Secondary English
EDUC I509

Current issues and problems in the teaching of English in high school and junior high school, new curricular questions, the teaching of reading and writing skills, the use of writing labs, the place of literature and media in a course of study and the potential of small group instruction and personal growth activities in the English classroom. Open to graduates and undergraduates, pre- and in-service teachers; fulfills methods requirement for secondary certification. (X)

Fundamentals of Bilingual Bicultural Education EDUC I590V

An introductory course in the specialized area of bilingual bicultural education. Focus on legislation, court decisions, OCR rulings, case studies, certification standards, history and culture of language minorities; class, school and district organizational models. (X)

Workshop in Education
EDUC I615

Priority given to teams of teachers and administrators who aim to uncover curriculum problems, determine beliefs about effective instruction, develop curriculum strategies and evaluation schemes, and implement plans during the fall. Workshop times and location will be announced, and will include: a three-week intensive workshop, a week of team planning, and two follow-up sessions in the fall. Prerequisite: permission of instructor; call Dr. Bunker at (413) 545-3121 or 545-0470. (X)

Sociology of Teaching
EDUC I690F

Impact of sociological forces in the professional outlook and activity of teachers. Three dominant themes: the influence of the occupation of teaching on teacher sentiments and behavior; the relationship of educational organization to teaching practice; the prospects for change in the light of the foregoing. (S)

Seminar in Reading
EDUC I691A

An advanced course in diagnosing reading needs and designing curriculum and strategies to meet those needs. Prerequisite: permission of instructor. (X)

Seminar in Education
EDUC I705

Selected issues, theory and present practice with emphasis on determiners of curriculum, methods of instruction, individualization of instruction and the role of evaluation. (S)

Issues in Inquiry Teaching
EDUC I790J

Alternative proposals regarding three facets of the inquiry process: the nature of explanation, moral and value education, and conceptual analysis. Emphasis on the implications for classroom practice of the various conflicting claims. (S)

DIVISION OF EDUCATIONAL POLICY, RESEARCH, AND ADMINISTRATION

Foundations of Education
EDUC P351

Selected problems and issues in modern education studied through the discipline of educational sociology, educational history, educational philosophy, comparative education, or social psychology. Independent study of field experiences optional. Possible foci are educational aims, societal expectations of the schools, church-state relations, professionalism, academic freedom, curriculum and methodological emphasis, urban education, and educational innovation. Fulfills "Foundations" requirement for students seeking Teacher Certification. (F)

Evaluation Models
EDUC P506

Seminar utilizing the writings of Guba, Stufflebeam, Stake, Pace, Serevin, Bloom, and Hammond. Philosophies of evaluation, variables employed in the various models, and the generation of new evaluation designs. Requirements include planning an evaluation of a college program by June 23, 1978, and the carrying out and reporting of the evaluation by December, 1978. Preference given to college personnel. The instructor will follow-up the course with individual conferences during the practicum component. (X)

Death and Dying Education
EDUC P590Q

Helps teachers deal with issues of death, dying and aging in the classroom. Includes student, teacher and public attitudes; surveys existing curricular materials in the field and develops others for use in particular K-12 situations. Subjects include: Why Death Education? Are the Schools the Proper Place? What Should Be Taught? Cross-Cultural Perspectives; Teacher Preparation and Qualifications; Course and Unit Development. (X)

Philosophy in the Classroom
EDUC P590T

Ways of introducing critical, creative and moral thinking into the secondary school curricula. Ways of stimulating these forms of thought through instruction of existing courses. On the secondary level, introduction and design of a self-contained philosophy. Content of mini-courses, semester and year-long philosophy courses. Students design a curriculum project incorporating critical creative and/or moral thought. (F)

Workshop in Education
EDUC P615

A series of three technical agricultural workshops on topics determined by needs assessment surveys of Massachusetts teachers of vocational agriculture. Two of the three workshops conducted on the University's Amherst campus and the third on the Presque Isle campus of the University of Maine. Instructor assisted by faculty of the College of Food and Natural Resources and technical representatives of the Electric Council of New England. For teachers of vocational agriculture. (X)

Agricultural Education Seminar on Wheels EDUC P691D

A five-day multi-state tour of outstanding programs of vocational education in agriculture in the Northeast. Includes on-site seminars with teachers, administrators, and local advisory committee members at selected schools, meetings with key agricultural leaders, and tours of instructional facilities and agribusiness firms. Following the tour, students will do assigned readings and will submit a comprehensive paper. Prerequisite: for teachers of vocational agriculture. (X)

LATE ADDITIONS

Practical Beekeeping entomology 166

X SESSION May 31-August 22 2 credits
Tuesdays and Thursdays at 11:15 a.m.
Lectures and practical laboratory experience.

Insects and Man (E) entomology 226

S SESSION July 12-August 22 3 credits
Monday through Friday at 9:30 a.m.

Students must register in person *for these courses.*

ENGLISH

Technical Writing
ENGL 151

Combines consideration of voice and style as they relate to the reader with the more typical concerns of writing reports, proposals, resumes, business letters, and technical articles. Emphasis on the transmission of technical information to the audience; close attention to societal conventions of grammatical correctness. Credit: 2. (F)

Major British Writers (C)
ENGL 172

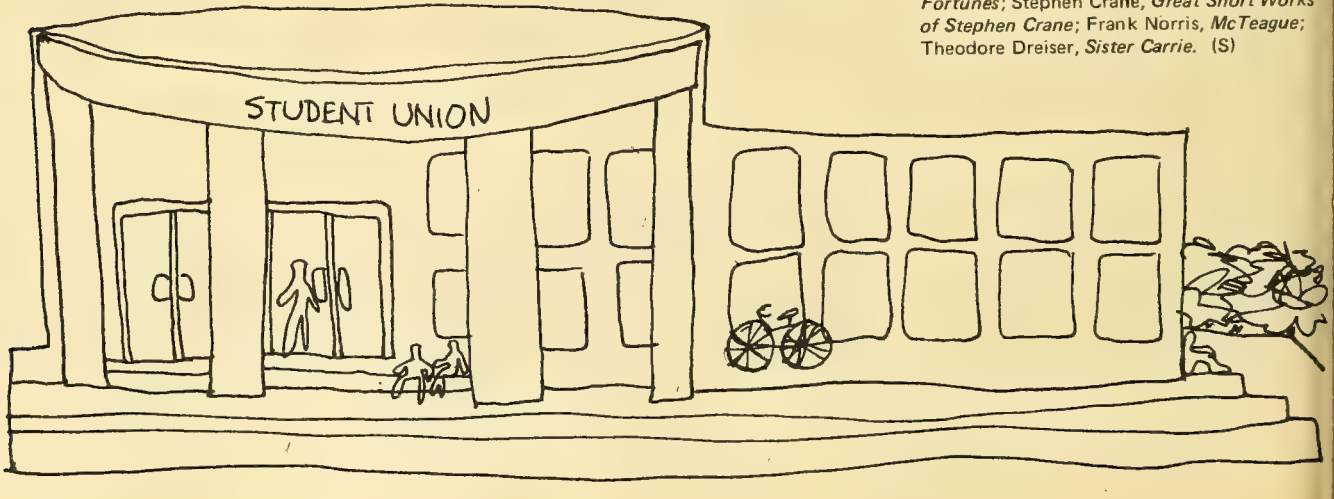
Introductory examination of selected English literature from about 1800 to World War II. Reading sufficiently wide to sample the tradition; focus on small groups of brief poems which can be studied in depth. Comparison, for roughly a week at a time, of pairs of poets whose works offer interesting contrasts of imagination: Wordsworth and Coleridge, Keats and Shelley, Tennyson and Browning, Eliot and Yeats. Poetic styles and various critical approaches. Background lectures when necessary; emphasis on appreciative reading of individual poems. If possible, to include a novel by Jane Austen, Dickens, or Lawrence. Requirements include some writing in and out of class, details of which can be negotiated. (S)

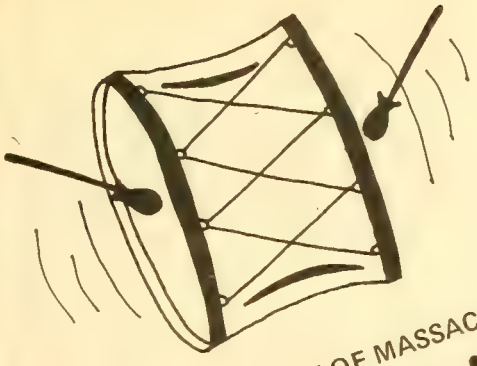
Creative Writing
ENGL 354

Introduction to the writing of short fiction and poetry. Some contemporary models from current publications; major focus on discussion of student work. Workshop encourages openness, honesty, and friendliness as the best aspects of the critical spirit; encouragement of strengths, rather than exaggeration of weaknesses. (F)

American Realism (C)
ENGL 273

Emphasis on the emergence of a realist tradition in American literature. Realism (primarily fictional realism) as a development, in both style and material, away from an earlier, more native American romanticism. Herman Melville, *Great Short Works of Herman Melville*; Walt Whitman, *Leaves of Grass*; Harriet Beecher Stowe, *Uncle Tom's Cabin*; Mark Twain, *Huckleberry Finn*; Henry James, *The Bostonians*; William Dean Howells, *A Hazard of New Fortunes*; Stephen Crane, *Great Short Works of Stephen Crane*; Frank Norris, *McTeague*; Theodore Dreiser, *Sister Carrie.* (S)





FIRST ANNUAL UNIVERSITY OF MASSACHUSETTS

MARCHING BAND & COLOR GUARD WORKSHOP

Sponsored by the Fine Arts Center in conjunction with the UMass "Minuteman" Marching Band and the Department of Music and Dance.

Educational Director: George N. Parks
Program Developer: Jeanne McKay

*Concentrated workshops for high school band students in Flags, Rifles, Twirling, Drum Major, Marching Percussion, and the popular "Corps Style Marching."

*Students enrolled in the Corp Style Marching Workshop will have the opportunity to learn and present an entire halftime show at the "Superbowl of Drum Corps" at Alumni Stadium on August 5.

*Director's Workshop will include sessions on the specialized aspects listed above as well as show conception, charting the field show, adapting "Corps Style" techniques for the high school or college marching band, and arranging for the marching band.

*Graduate credit will be offered for the Director's session.

*All sessions will be instructed by experienced instructors and performers who are specialists in their field.

*As a finale for the week long workshops, the Fine Arts Center will sponsor the "Superbowl of Drum Corps" featuring five of the nation's leading Senior Drum and Bugle Corps in competition.

For inquiries write to:

George N. Parks
UMass Marching Band and Color Guard Workshop
University of Massachusetts
Department of Music and Dance
Amherst, MA 01003

SUMMER SESSION 1978 REGISTRATION

Name CZ-A05 — LAST NAME | FIRST NAME | INITIAL

Home Address BA1 — NUMBER & STREET

CITY | STATE | ZIP CODE

Home Tel — Area Code | If No Phone, Write "None" | Country of Citizenship (other than U.S.)

Local Address (if different from home) BA2 — NUMBER & STREET

CITY | STATE | ZIP CODE | A

PLEASE CODE APPROPRIATE BOXES

A A 1 — 'G'-Graduate 'S'-Undergrad | 'N'-Non-Vet 'V'-Vet

F J — 'M'-Male 'F'-Female | 'M'-Mass. Res. 'O'-Other State 'F'-Foreign

'S'-Single 'M'-Married 'D'-Divorced 'W'-Widowed | 'CT'-Citizen 'UN'-Not Citizen

Birthdate — month | day | year

Social Security Number

REGULAR UNIVERSITY STUDENTS

Student Number

CAMPUS: 'U'-UGrad-Amherst 'G'-Grad-Amherst 'E'-ContEd-Amherst 'B'-Boston Campus 'Z'-UGrad Visiting Student 'N'-Grad Visiting Student — CLASS

BLOCK 1-UNDERGRADUATE FROM BOSTON CAMPUS
This certifies that the student has been enrolled at the Boston Campus and has our approval to take courses listed.
Record Clear: [ ] Yes [ ] No
(If No, state nature of encumbrance)

Advisor's Signature

Registrar's Signature

CHECK AND COMPLETE ONE OF THE FOLLOWING APPROPRIATE ITEMS:

1. Currently enrolled University of Massachusetts student:
   Campus: [ ] Amherst [ ] Boston (complete Block 1)
2. *Formerly enrolled University of Massachusetts student:
   Campus: [ ] Amherst [ ] Boston (complete Block 1)
   Date of last attendance: _____

*Note: Students twice terminated from the University for academic deficiency are not eligible to attend Summer Session without approval from the Board of Admissions and Records.

3. Accepted as a new University of Massachusetts student: [ ] Undergrad [ ] Grad
4. [ ] A summer visiting student only.

SAMPLE 260846 (Schedule No.) CHEM (Department) 111A (Course No.) 1F (Section/Session) Gen Chem – Sci (Course Title) 4 (Credits) x $ 30.00 (per credit) = $ 120.00 (Course Fee)

Lab Section (if applicable) 260846 (Schedule No.) 1G (Section/Session) ☐ Graduate ☑ Undergrad

Schedule No. | Department | Course No. | Section/Session | Course Title | Credits x $ per credit = $ Course Fee

Lab Section (if applicable) Schedule No. | Section/Session | Graduate | Undergrad

Schedule No. | Department | Course No. | Section/Session | Course Title | Credits x $ per credit = $ Course Fee

Lab Section (if applicable) Schedule No. | Section/Session | Graduate | Undergrad

Schedule No. | Department | Course No. | Section/Session | Course Title | Credits x $ per credit = $ Course Fee

Lab Section (if applicable) Schedule No. | Section/Session | Graduate | Undergrad

Schedule No. | Department | Course No. | Section/Session | Course Title | Credits x $ per credit = $ Course Fee

Lab Section (if applicable) Schedule No. | Section/Session | Graduate | Undergrad

DO NOT INCLUDE LAB FEES

TOTAL COURSE FEES $_____

CREDIT CARD PAYMENT

Please bill my: ☐ AMERICAN EXPRESS ☐ master charge ☐ VISA

Expiration Date | Mastercharge Bank No.

Credit Card Number

Signature

FULL PAYMENT MUST ACCOMPANY MAIL REGISTRATION

Make checks payable to:
University of Massachusetts

Send to:
Summer Session 1978
P.O. Box 835
Amherst, MA 01002

SUMMER SERVICES FEE $_____
(Required of all students)
F Session - $42
S Session - $42
X Session - $7/week
Independent Study - $7/credit
(See EXPENSES on page 11)
TOTAL AMOUNT DUE AND ENCLOSED $_____

M N B J C

CELEBRATE SUMMER

Celebrate Summer at the University of Massachusetts with a summer long Festival of the Arts presented by the Arts Extension Service.

Adults can take part in the Summer Arts Hostel, live on campus for a week, choose three mini-courses from the nine offered and share in all the special Summer Arts Hostel activities.

Children from 7 to 14 can participate in "Exploring the Arts Day Camp": arts classes in everything from songwriting to puppetry and printmaking along with swimming and other recreational activities make up this 9 to 5 weekday program.

Everyone can enjoy the Artist-in-Residence Performance Series. At lunchtime and on weekday evenings, mime, theater, dance and all kinds of music will be presented.

For more information on these programs watch for the Summer Credit-Free Catalog or call the Summer Arts Office at (413) 545-0396.

AES

1978 SUMMER HOUSING APPLICATION

Name _____ Date _____

Address _____

City/State _____ Zip _____

Telephone _____

Date of arrival _____ Date of departure _____

HOUSING FEE: $21/week per person

Enclosed is my check for $ _____ in *full payment* for summer housing 1978.

Check should be made payable to: University Conference Services. No one will be admitted to the dorm until the housing fee is paid *in full in advance*. Send application and full payment to:

Summer Housing Office
920 Campus Center
University of Massachusetts
Amherst, MA 01003.

New England's largest gathering of visual artists, craftspeople, performing artists, filmmakers, photographers, writers, and more.

The New England Artist Festival and Showcase is presented by the Arts Extension Service of the Division of Continuing Education.

For more information please call 545-2013.

AES

JOIN US FOR THE THIRD ANNUAL

Toward Tomorrow Fair

June 16-18, 1978

*Buckminster Fuller

*Dennis Meadows

*Bruce Anderson

*John Todd

*Amory Lovins

*J. Baldwin

*Helen Caldecott

*Denis Hayes

*Lynn Margulis

*Over 200 speakers, presentations, workshops and discussions which explore the social and technological options available for your future!

For more information contact:

Toward Tomorrow
Hasbrouck Building
University of Massachusetts
Amherst, MA 01003

FORESTRY

The Elements of Forest Mensuration
FOREST 225

The measurement of trees, stands, and forest products; practice in timber estimating and log scaling; collection and compilation of forest inventory data. (X)

FRENCH

Elementary French
FRENCH 110

Continued training and practice in reading, writing, speaking and understanding. Students with previous study of French are advised to enroll in FRENCH 120 during fall or spring semesters. (F)

Intermediate Fiction
FRENCH 144

Reading contemporary French fiction without recourse to translating to English; works of contemporary writers. Prerequisite: 130 level French. (F)

FOOD SCIENCE & NUTRITION

People and Nutrition (E)
FS & N 130

Basic facts and principles of human nutrition. Application of this knowledge to maintenance of good health and vigor. Contemporary problems in human nutrition. For students not majoring in food science and nutrition. (F)

GENERAL BUSINESS & FINANCE

Administrative Statistics
GB FIN 250

Probability and statistical distributions applied to business management problems; application of Bayes theorem to sampling for business decision-making under uncertainty. (F, S)

Introduction to Law
GB FIN 260

The nature, function and limits of law. Various theoretical approaches to law as an important institution in society. Selected problems of law, power and stratification and the relationship of law and values in society. (F)

Corporation Finance
GB FIN 301

Corporate financial behavior; appraisal of factors affecting decision-making regarding sources and application of funds; introduction to capital budgeting and cost of capital problem. Prerequisite: ACCTG 221 or permission of instructor. (F, S)

Investments
GB FIN 320

Development of the general theory of investment with emphasis on the individual investor; practical application of the techniques to real world problems. (F)

Seminar in Urban Studies
GB FIN 472

An overview of the social, economic and political problems of urban America. Also concentrates on the major public finance issues of metropolitan government and explores fiscal and structural alternatives. (F)

GEOGRAPHY

Human Geography (D)
GEOG 155

Introduction to human spatial behavior in earth-space; emphasis on man-environment interaction and economic behavior. (F)

Economic Geography (D)
GEOG 360

Spatial variations in economic activity and behavior, addressing a variety of agricultural, industrial and commercial activities partly through theory and partly through case studies. (S)

GEOLOGY

Physical Geology (E)
GEOL 101

The nature and origin of the landscape features of the earth and their structures, including the work of rivers, waves and currents, wind, and glaciers: the role of earthquakes, volcanoes, and the processes of mountain building. (F)

GERMAN

Elementary German
GERMAN 110, 120

For the student who has no previous training in German. Emphasis on understanding and reading. Sequence to be followed: GERMAN 110, 120, 230, 240. (110, F; 120, S)

HISTORY

Development of American Civilization, 1876-Present (C) HIST 151

Includes social change, immigration, and the emergence of industrial, urban society. Also, the evolution of American politics from the laissez-faire ideas and limited foreign commitments of the late 19th century to the nation's present-day welfare state and global diplomacy. (F, S)

European Intellectual History in the 20th Century (C) HIST 314

Philosophical, academic, literary, aesthetic, political and popular currents since 1900. (F)

History of Russia (C)
HIST 316

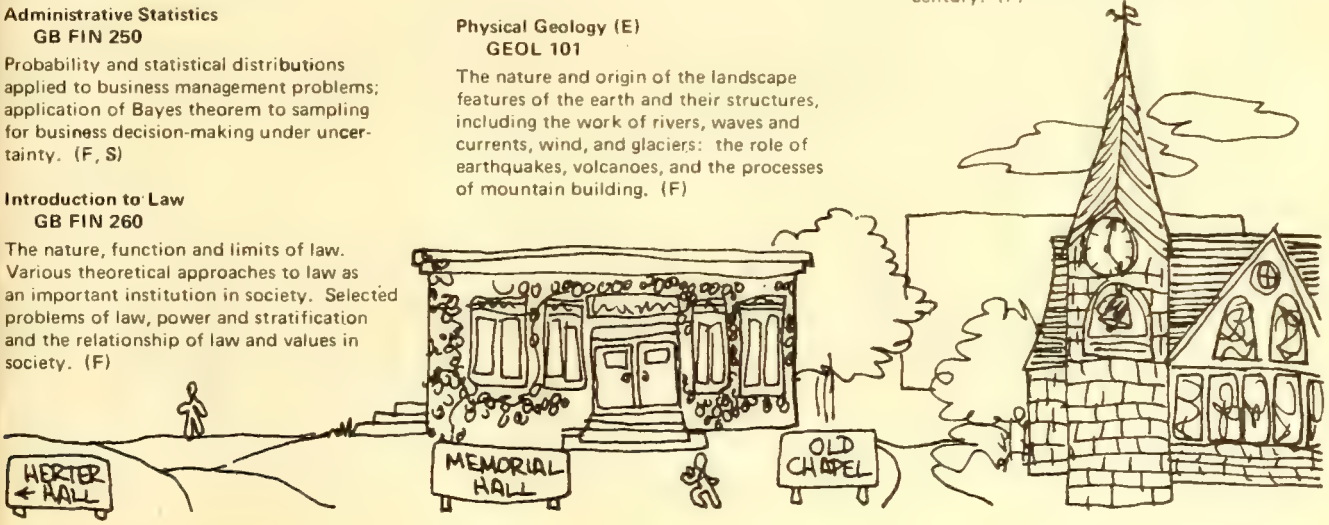
Survey of Russian political, social, economic, and intellectual history from 1815 to the present. The impact of modernization on Russia in the 19th and 20th centuries. (S)

The Civil War Era (C)
HIST 364

The causes, execution, and consequences of the American Civil War. Emphasis on sectional conflict from the early national period to Southern secession in 1860-1861, to the nature and conduct of the war itself, and to the war's profound consequences. (S)

American Thought and Culture (C)
HIST 373

The basic strands of American thought and their reflection in American culture since 1865. Includes Gilded Age and 20th century. (F)



European Intellectual History in the 20th Century HIST 597A

Philosophical, academic, literary, aesthetic, political and popular currents since 1900. (F)

American Thought and Culture II HIST 597B

The basic strands of American thought and their reflection in American culture since 1865. Includes Gilded Age and 20th century. (F)

History of Russia HIST 597C

Survey of Russian political, social, economic, and intellectual history from 1815 to the present. The impact of modernization on Russia in the 19th and 20th centuries. (S)

The Civil War Era HIST 597D

The causes, execution, and consequences of the American Civil War. Emphasis on sectional conflict from the early national period to Southern secession in 1860-1861, to the nature and conduct of the war itself, and to the war's profound consequences. (S)

HOTEL, RESTAURANT & TRAVEL ADMINISTRATION

Introduction to the Hospitality Industry HRTA 100

An orientation to the hotel, restaurant and travel industry. Development of the industry, current trends, and opportunities in the various sectors of the industry. (F)

Food Service Management HRTA 211

Practices used by the food service industry pertaining to purchasing, receiving, and issuing food, beverages, and other supplies. Principles of food and beverage cost control. (F)

Managerial Accounting for the Hospitality Industry HRTA 330

Financial practices and systems used in hotels and restaurants. Controls, capital budgeting, operational budgeting, use and interpretation of financial statements, and specialized hotel accounting procedures. Prerequisite: course in accounting. Nonmajors require permission of instructor. (F)

leonard bernstein festival
of american music

presents
FLORENCE QUIVAR,
mezzo-soprano
july 23, 1978 8:00 pm
fine arts center concert hall
with the festival orchestra under
the direction of robert gutter
ticket information call (413) 545-0022

ITALIAN

Intensive Elementary Italian ITALIAN 126

The acquisition of basic language skills. Learning effected by means of immediate correction and continual reinforcement. An alternative to the first year of the traditional four-semester sequence. Covers work normally done in one year; does not double the work. (F)

JOURNALISM

Introduction to News and Reporting JS 200

Journalism reporting and writing; lectures, discussion and intensive writing and reporting in a laboratory setting. The news form and reporting process examined and practiced under faculty supervision. Preliminary research such as that required to write a letter of proposal to a newspaper or magazine editor. Students MUST be able to use a typewriter with reasonable facility. (X)

Principles of Public Relations JS 290P

Covers principles, history and practice of public relations in business, educational institutions, social welfare organizations, government and the military services; the processes of influencing public opinion; analyses of public relations programs; the responsibilities of the public relations practitioner to his/her principals, to the media, to the public; ethics of public relations practice; professional public relations organizations; accrediting of public relations practitioners; career opportunities. (X)

LATIN

Elementary Latin (Intensive) LATIN 110

An introduction to the elements of the Latin language. Credit: 5. (F)

Intermediate Latin (Intensive) LATIN 140

Mastery of the basic structures of the Latin language and attainment of intermediate competence in reading Latin prose. Prerequisites: LATIN 110 or 125, or 2 to 3 years of Latin in high school. Credit: 5. (F, S)

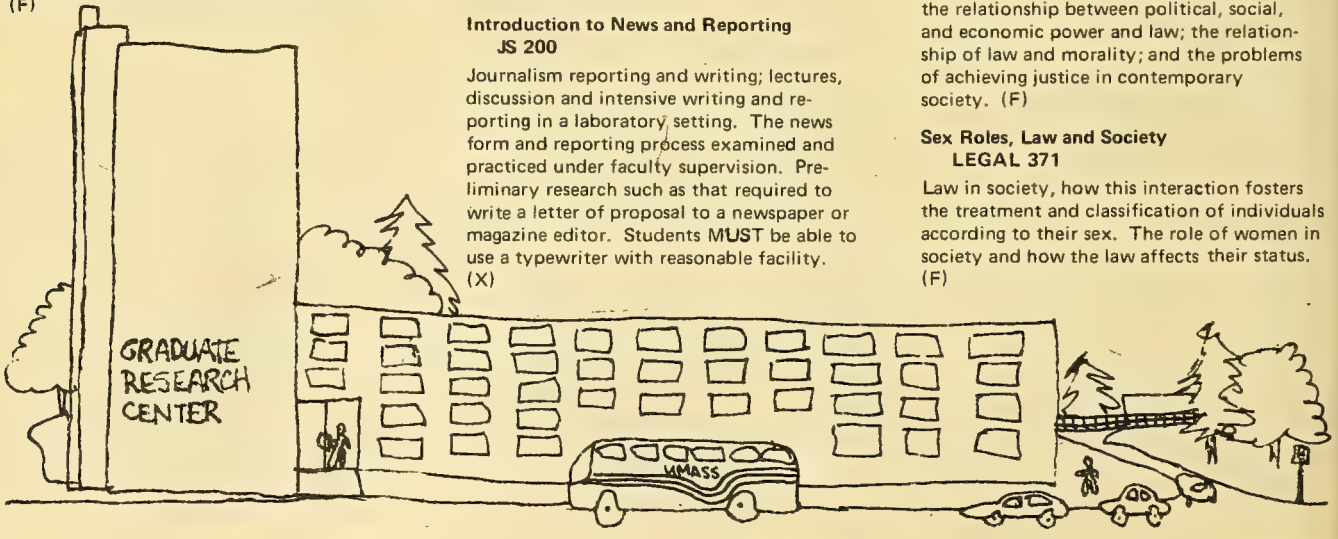
LEGAL STUDIES

Introduction to Legal Studies LEGAL 250

The purposes and functions of law in society. Legal reasoning and decision-making; the impact of law upon persons directly and indirectly involved with it; the relationship between political, social, and economic power and law; the relationship of law and morality; and the problems of achieving justice in contemporary society. (F)

Sex Roles, Law and Society LEGAL 371

Law in society, how this interaction fosters the treatment and classification of individuals according to their sex. The role of women in society and how the law affects their status. (F)



MANAGEMENT

Principles of Management
MGT 301

Introduction to the fundamentals of the management of organizations. Survey includes behavioral background of formal organizational life, organizational design, integrating factors in collective behavior, organizational change, systems analysis, techniques of decision-making and control, the organization and its environment, and the nature of management theory. (F, S)

Personnel Management
MGT 314

Principles and policies followed by management in recruitment, development, direction, and control of personnel. (F, S)

Managerial Behavior
MGT 330

Principles of human behavior in organizations: understanding of one's self as a person and as a manager; development of interpersonal managerial skills. Prerequisite: MGT 301. (F)

Administrative Theory
MGT 331

Principles of administration, modern organization theories, specialization, functionalization, coordination, planning and control, authority status, leadership, decision-making, communication, and power-structuring. Prerequisites: MGT 301 and 330. (S)

Business and Its Environment
MGT 365

A critical examination of the social, political, technological, and ethical issues confronting the contemporary manager and the modern corporation. Competing concepts of the role of business in society. Prerequisite: junior standing or permission of instructor. (F)

MARKETING

Fundamentals of Marketing
MKTG 301

The role of marketing in our economic and social structure. The planning, distribution, pricing and promotion of goods and services to consumer and industrial markets. (F, S)

Marketing Research
MKTG 412

The systematic gathering, recording and analyzing of data about problems relating to the marketing of goods and services. Individual case study and research projects. Prerequisites: MKTG 301 and STAT 140 or permission of instructor. (F)

Marketing Communications
MKTG 422

Development of effective marketing communication strategies based upon an understanding of the characteristics of audiences. Conceptual material from communications theory applied to advertising and other promotional problems. Prerequisite: MKTG 301, or permission of instructor. (F)

Marketing Strategy
MKTG 459

Exposure to realistic problems through computerized simulation or analysis of cases. Practice in seeking solutions to marketing problems through an integration of factors pertinent to strategy development. Prerequisite: senior standing or permission of instructor. (F)

MATHEMATICS

Algebraic Review
MATH 101

A rapid review of algebraic manipulations and definitions utilized in calculus. Topics include common subsets of the real numbers; sums, products, and quotients of polynomials; factoring, rational expressions; exponents and radicals; linear and quadratic equations; radical equations; linear and quadratic inequalities; equations and inequalities involving absolute values. Credit: 1. (X)

Analytic Geometry with Elementary Functions MATH 102

An introduction to the function concept and analytic geometry. Topics include relations and functions; one-to-one functions and their inverses; linear, quadratic, and other polynomial functions; exponential and logarithmic functions; lines; conic sections. Prerequisite: MATH 101. Credit: 1. (X)

REGISTER BY MAIL

Precalculus Trigonometry
MATH 103

An introduction to trigonometry covering topics considered essential for standard calculus. Topics include definitions and graphs of cosine, sine, tangent, cotangent, secant, and cosecant; essential identities; introductory triangle trigonometry. Prerequisite: MATH 102. Credit: 1. (X)

Mathematics for Business I (E)
MATH 120

Designed for School of Business Administration students. Analytic and linear mathematical methods and their applications to business. Derivatives, extrema, and introduction to the integral. Credit not given after MATH 127 or 131. Prerequisite: high school algebra. (F)

Mathematics for Business II (E)
MATH 121

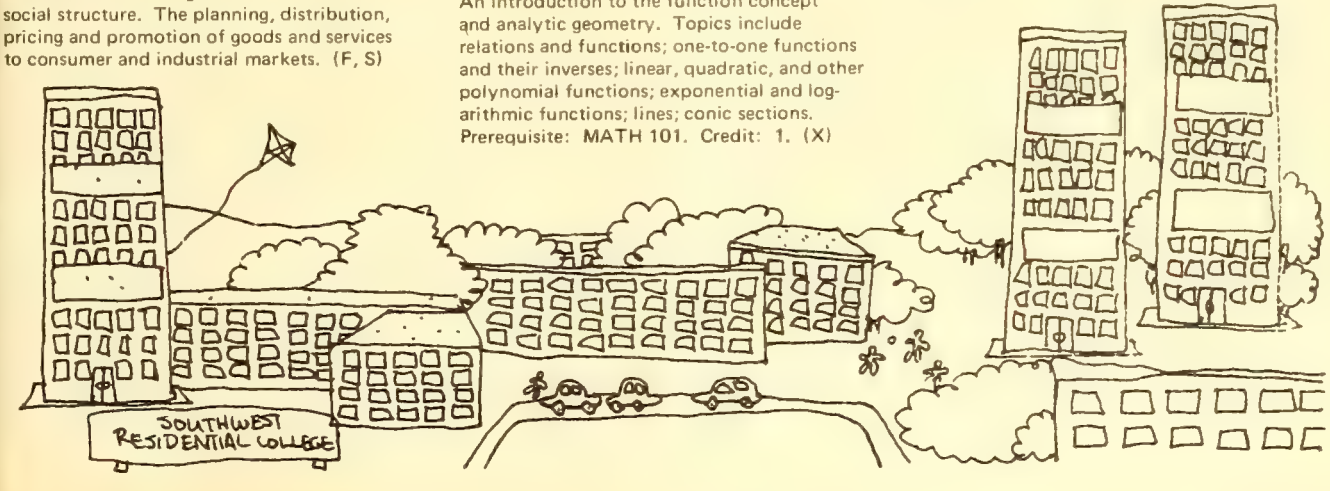
Continuation of MATH 120. Techniques of integration, partial derivatives, linear systems of equations, matrices, vectors, Markov chains, and linear programming. Credit not given after MATH 112, 233, or 235. Prerequisite: MATH 120. (S)

Calculus for the Life and Social Sciences I (E)
MATH 127

Introduction to differential and integral calculus. Applications to the life and social sciences stressed. Credit given for only one of the courses MATH 120, 127, 131. Prerequisite: high school algebra. (F)

Calculus for the Life and Social Sciences II (E) MATH 128

Continuation of MATH 127. No credit after MATH 121, 132, 133. Prerequisite: MATH 127. (S)



Calculus I (E)
MATH 131

Introduction to differential and integral calculus of functions of a single variable: continuity, derivatives, extrema, curve sketching, the integral, elementary integration techniques. Primarily for students in Math and the sciences. Credit given for only one of the courses MATH 120, 127, 131. Prerequisites: high school algebra, plane geometry, trigonometry, and analytic geometry of lines and conic sections, or MATH 101, 102, and 103. Credit: 4. (X)

Calculus II (E)
MATH 132

Continuation of MATH 131. Integration techniques, limits, partial derivatives, integrals as limits, improper integrals, theorems of Cauchy and Taylor, infinite series and power series, smooth curves. Credit given for only one of the courses MATH 132 and 133 (138). Prerequisite: MATH 131. Credit: 4. (X)

Multivariable Calculus (E)
MATH 233

Functions of several variables, partial derivatives, multiple integrals, theorems of Green, Stokes, and Gauss. Prerequisite: MATH 132/133. (X)

Introduction to Linear Algebra (E)
MATH 235

Vector spaces over the real field, linear independence, linear equations, bases and dimension, inner product spaces, linear transformations and matrices, determinants, eigenvalues, applications to geometry. Prerequisite: second semester of calculus. (X)

Introduction to Modern Algebra I (E)
MATH 411

Introduction to groups, rings, and fields. Not for credit after MATH 511. Prerequisite: MATH 235. (X)

Ordinary Differential Equations for Scientists and Engineers (E)
MATH 431

First and second order equations, elementary theory of Laplace transforms, systems with constant coefficients. Not for credit after MATH 531. Prerequisite: MATH 132/133. MATH 233 recommended as a corequisite. (X)

Topics in Geometry for High School Teachers MATH 597A

The Desargian Affine Plane is the basic object of study. This generalization of a Euclidean plane provides insight into the connection between the geometric properties of points and lines and algebraic properties of the real number system. (X)

Topics in Probability and Statistics for High School Teachers MATH 597B

A course emphasizing the concepts of statistical inference and their development from, and dependence on, the fundamental notions of probability. The theory of probability will comprise somewhat over half the course. (X)

leonard bernstein festival
of american music

presents
WEST SIDE STORY
june 29, 30 july 1 & 3, 1978 8:00 pm
fine arts center concert hall
ticket information call (413) 545-0022

MICROBIOLOGY

Biology of Microorganisms (E)
MICBIO 150

The microbial world, including history, structure, growth, ecology, physiology, pathogenesis, and microbial genetics. (F)

MECHANICAL ENGINEERING

Mechanics I (Statics)
ME 210

A vector treatment of the equilibrium of particles and rigid bodies. Topics include: vector algebra, forces, moments, couples, equations of equilibrium, free-body diagrams, graphical techniques, constraints, structures and mechanisms, friction, centroids and moments of inertia, the method of virtual work. Prerequisites: MATH 132, PHYSIC 161. (F)

Mechanics II (Strength I)
ME 211

Notions of stress, strain, and Mohr's circle. Tension shear and torsion. Plane stress and plane strain; moments of inertia. Shear force and bending moment diagrams. Deflection of beams; indeterminate beams; Castigliano's principle; plastic bending of beams. Mechanical properties of materials. Prerequisite: ME 210. (F)

Thermodynamics
ME 230

The laws of thermodynamics introduced and applied to various energy-transforming devices. Property relations. Emphasis on the science of thermodynamics, providing a background for further study in those areas that involve thermodynamic principles. Prerequisites: PHYSIC 162 and MATH 233. (F)

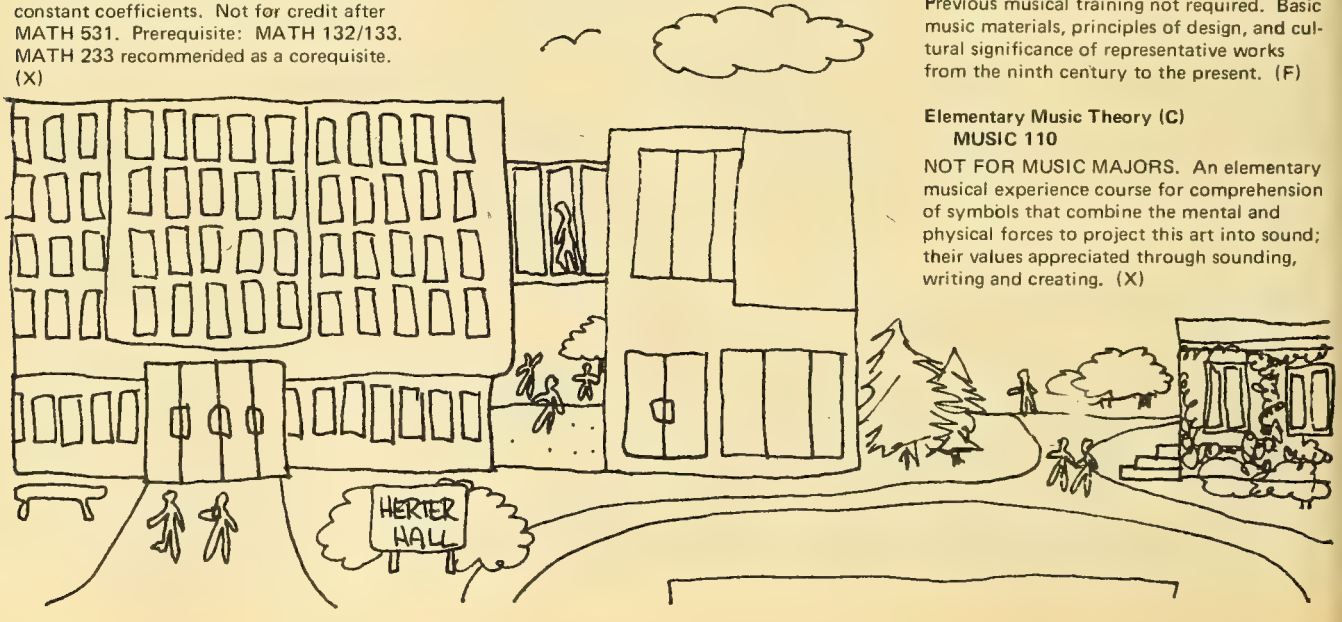
MUSIC AND DANCE

Introduction to Music (C)
MUSIC 100

Open to all students not majoring in music. Previous musical training not required. Basic music materials, principles of design, and cultural significance of representative works from the ninth century to the present. (F)

Elementary Music Theory (C)
MUSIC 110

NOT FOR MUSIC MAJORS. An elementary musical experience course for comprehension of symbols that combine the mental and physical forces to project this art into sound; their values appreciated through sounding, writing and creating. (X)



Elementary Music Theory (C)
MUSIC 113

Notation, ear-training, solmization, sight-reading, harmony, counter-point, analysis by score and sound of music literature from all periods, orchestration, improvisation and original composition. Open to music majors and music minors upon approval of the Chief Advisor of the Department of Music. Prerequisite: MUSIC 112. (F)

Seminar: Explorations in Music
MUSIC 193A

Assumes little or no background. Improvisations, composition experiences, using non-traditional and environmental sound sources, vocal sound exploration, traditional and non-traditional instrumental techniques, electronic music, and functional notation systems. Applications of techniques and materials for use with children at various levels. For professional and prospective classroom teachers. (X)

Music Literature: 1600-1750
MUSIC 610

Analyzing composition during 1600-1750. (F)

The following music courses are offered in association with the Leonard Bernstein Festival of American Music. The Thad Jones-Mel Lewis Quartet and other jazz greats and internationally renowned composer Lukas Foss will join the Music Faculty in scheduled coursework. Students may attend rehearsals and concerts associated with the Festival.

Interested students should contact Susan Huetteman, Administrator of Workshops, The Leonard Bernstein Festival of American Music, Fine Arts Center, University of Massachusetts, Amherst, MA 01003, phone (413) 545-0519 PRIOR TO REGISTRATION.

The Bernstein Festival Workshop
MUSIC 591A

For participants in the productions of the Leonard Bernstein Festival. Credits: 1-3. (X)

American Music History
MUSIC 591B

A survey of American music with emphasis on Leonard Bernstein. Guest lectures by renowned jazz artists and special lectures by composer Lukas Foss. (X)

Jazz in Public School Music
MUSIC 591C

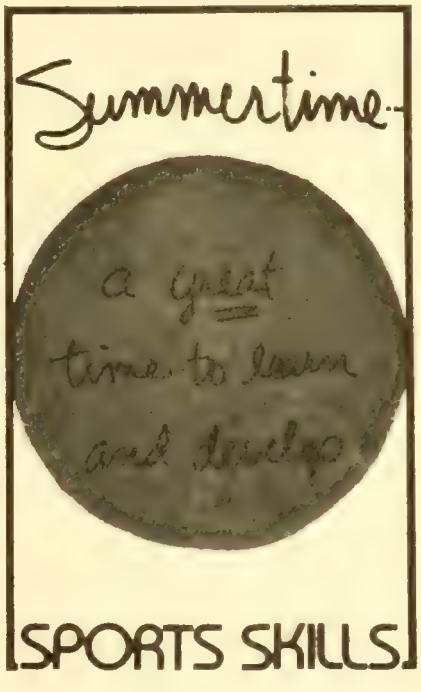
The implementation of a jazz program in the public schools. Guest appearances by renowned jazz artists. (X)

Jazz Theory/Improvisation/Performance
MUSIC 591D

The art of jazz improvisation with guest appearances by renowned jazz artists. (X) (Guest lectures section IX only.)

Music Theater in the Public Schools
MUSIC 591E

Practical solutions to the problems of musical theater production in the public schools. Credits: 1-3. (X)



PHILOSOPHY

Introduction to Philosophy (C)
PHIL 100

Some of the most important general questions, ideas, theories, and methods of inquiry which have given direction to Western thought. (F)

Introduction to Logic (E)
PHIL 110

The nature of critical thinking, including the functions of language, the structure of deductive arguments, and a glimpse at inductive methods. (F)

PHYSICAL EDUCATION

Intermediate Swimming
PE 100 G02

Emphasis on mechanics of strokes. Prerequisite: beginning swimming or equivalent. (S)

Distance Swimming
PE 100 G03

Instruction in some basic competitive techniques and distance swimming. (F, S)

Advanced Life Saving
PE 100 G08

Red Cross certification course. (F)

Jogging and Conditioning
PE 100 G11

Progressive individualized program for the development of cardiovascular endurance and general physiological well being. (F,S)

Weight Training and Fitness for Women
PE 100 G14

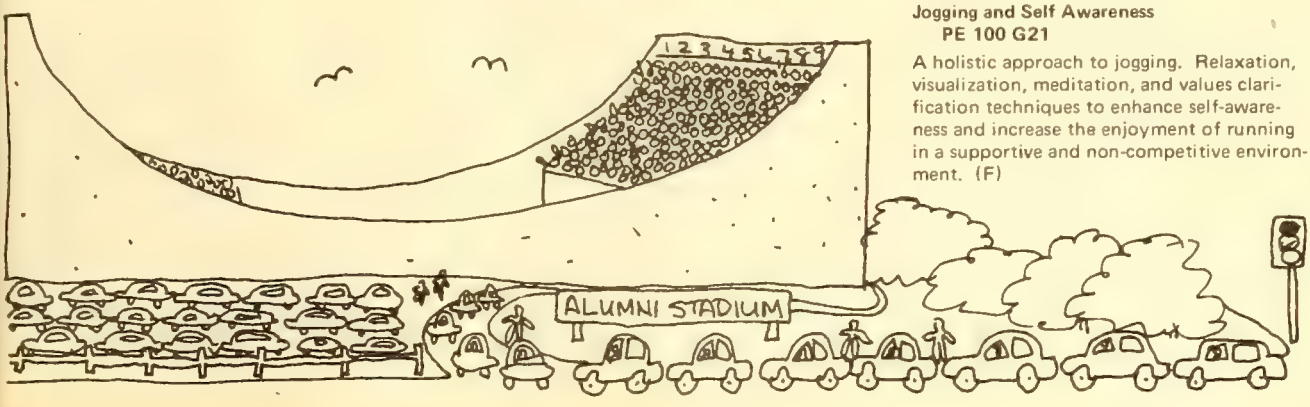
Introductory course in weight training; emphasis on development of strength and physiological well-being. (F)

Games for Personal Growth
PE 100 G20

A variety of play, sport, and physical activity experiences; participants explore personal physical activity patterns and discover ways to facilitate personal positive changes in physical activity lifestyle; personal definition of physical activity. (F)

Jogging and Self Awareness
PE 100 G21

A holistic approach to jogging. Relaxation, visualization, meditation, and values clarification techniques to enhance self-awareness and increase the enjoyment of running in a supportive and non-competitive environment. (F)



Bowling I
PE 100 G45

An introductory course designed to develop sufficient proficiency for participation in recreational bowling. (F)

Golf I
PE 100 G55

Basic course for development of essential skills and knowledge needed for participation in the sport. (S)

Tennis II—Advanced
PE 100 G66

Prerequisite: Tennis I, or permission of instructor. (F, S)

Tennis I
PE 100 G67

Fundamentals for beginners. (F, S)

Canoeing
PE 100 G69

An introduction to basic canoeing nomenclature, techniques and skills, safety, navigational and rescue procedures, and general maintenance. Canoeing on flat waters and in slight current. Culminates the weekend of June 17, 18. Fee required. (X)

Backpacking
PE 100 G70

Introduction to basic skills necessary for enjoying a wilderness experience. Comparison of various types, constructions, and use of equipment, clothing and techniques of backpacking and exposure to hiking skills and philosophy. Outdoor lecture and laboratory experience. Field trip required. (X)

PROFESSIONAL PREPARATION IN PHYSICAL EDUCATION

Outdoor Bound
PEP 197A

A group laboratory experience in the out-of-doors. Participants through group dynamic procedures explore and apply outdoor skills. Lecture and practical applications encompass the following skills: camping techniques, orienteering, emergency first aid, group initiative activities and environmental concerns. Two weekend experiences required. (F)

Applied Behavior Analysis
PEP 401

Individually paced content offering research information and techniques of behavior modification for teachers of physical education and coaches of sport. (F)

Curriculum Workshop in Physical Education
PEP 597B

A systematic model for curriculum development applied to physical education. Participants develop curriculum materials for the unique setting in which they teach. Workshop activities structured to facilitate sequential preparation of these materials. Emphasis on application of learning theory, consideration of characteristics, interests and needs of students, and consistency among the following components of the systems model: philosophy and goals, specific objectives, content, learning activities, and evaluation criteria and procedures. (S)

AES
PARTICIPATE
Campus Arts Events, Information on Area Artists, Courses, Grants...For help concerning just about anything to do with the Arts in western Massachusetts call: THE ARTS EXTENSION SERVICE
545-2013

PLANT & SOIL SCIENCES

Plant Propagation
PLSOIL 110

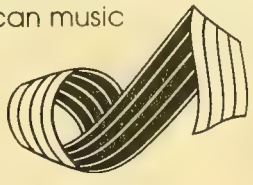
The science of plant reproduction. Prerequisite: PLSOIL 100 or equivalent, or permission of instructor. (X)

Organic Farming and Gardening (E)
PLSOIL 120

Basic principles of plant nutrition and culture, soil fertility and management by organic methods, biological and natural control of insect pests, weeds and plant diseases, variety selection, and alternative chemical methods. (X)

Special Topics: Plant-Soil-Water Relations
PLSOIL 597A

Theories and concepts of soil-plant-water relations concerning the field-water cycle, the soil-water balance, soil moisture storage and availability to plants, and root activity and plant response to moisture stress. (X)

leonard bernstein festival
of american music

presents
TROUBLE IN TAHITI
july 12, 13, 15, 19, 20, 21 & 22, 1978
bezanson recital hall, fine arts center
ticket information call (413) 545-0022

PHYSICS

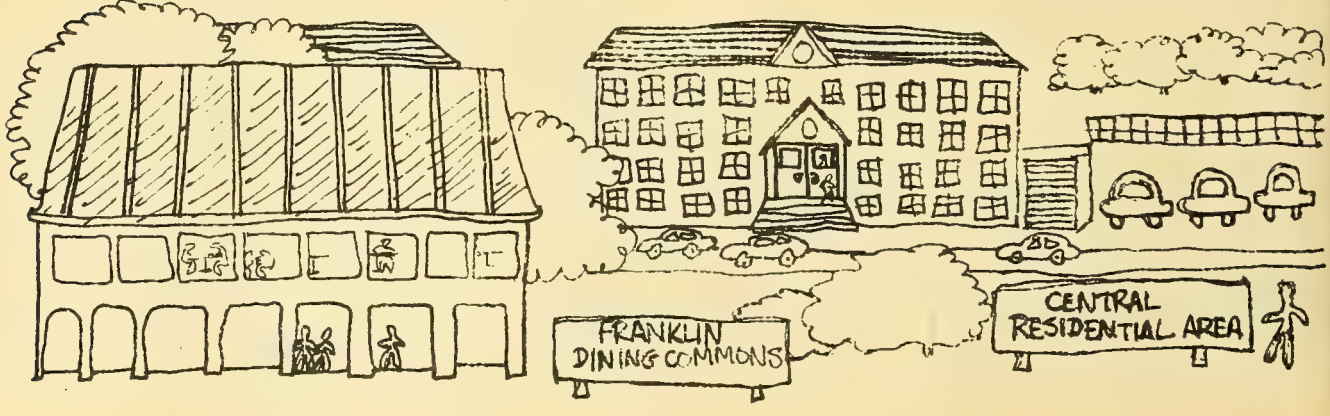
Introductory Physics I, II (E)
PHYSIC 141, 142

Mechanics, sound, heat; electricity, magnetism, light and modern physics, using trigonometry and algebra, but not calculus. Intended for pre-medical, pre-dental, pre-veterinary, and other life science majors. Prerequisites: MATH 130 previously or concurrently for PHYSIC 141; PHYSIC 141 for PHYSIC 142. Credit: 4 each. (141, F; 142, S)

POLITICAL SCIENCE

American Politics (D)
POLSCI 101

Introduction to constitutional principles and public policy-making in American national government. Democratic theory, major national political institutions, electoral behavior, and selected public policy questions. (F, S)



World Politics (D)
POLSCI 121

Introduction to the nature, dynamics, and problems of world politics. Nationalism, ideology, and other forces underlying the foreign policies of the United States, the Soviet Union, and other states, as illustrated by selected contemporary issues. (S)

Problems in Contemporary Government (D)
POLSCI 141

Comparative examination of selected issues in the governments of various nations. (F)

Public Administration (D)
POLSCI 320

Organization of bureaucracy, bureaucratic life, constitutional position, and political role of governmental bureaucracy. (F)

Political Theory and Public Policy (D)
POLSCI 325

Evaluation of social policy in the United States. Emphasis on normative issues raised in controversies over selected cases of social and economic policy in the light of the main traditions of Western political thought and of recent work on the logical and ethical aspects of social choice. (S)

PORTUGUESE

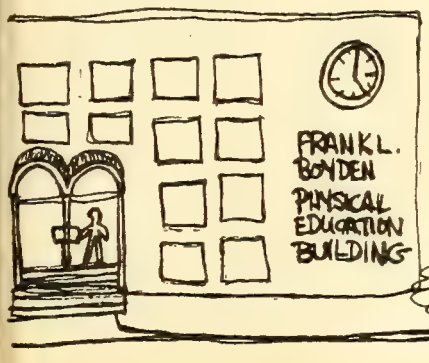
Elementary Portuguese—Intensive
PORT 126

Emphasis on the oral aspect. Designed to allow completion of PORT 110 and 120 in one semester. Credit: 6. (F).

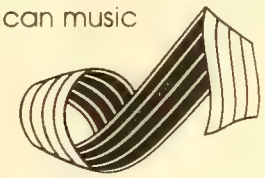
PSYCHOLOGY

Elementary Psychology (D)
PSYCH 100

An introduction to the basic approaches and concepts of modern psychology. Examples from the areas of perception, conditioning, cognitive processes, social behavior, tests and measurements, and personality. (F)



leonard bernstein festival
of american music



presents
HARTFORD BALLET
michael uthoff, artistic director
july 15 and 16, 1978 8:00 pm
fine arts center concert hall
ticket information call (413) 545-0022

Psychology as a Social Science (D)
PSYCH 150

Introduction to the basic approaches and concepts of psychology as a social science. Topics include issues from clinical, developmental, educational, human learning, and language, personality and social psychology. (S)

Educational Psychology (D)
PSYCH 205A

Psychological facts and principles of development, learning, and measurement as applied to educational situations. Prerequisite: PSYCH 100 or 150. (F)

Statistics in Psychology
PSYCH 240

Introduction to statistical principles and techniques as applied to psychological data. Prerequisite: knowledge of basic algebra. (S)

Methods of Inquiry in Psychology
PSYCH 241

Introduction to the way questions about behavior are formulated and then tested through laboratory experiments, field research methods, naturalistic observation techniques. Lectures, discussions, and laboratory. Concepts from many areas of psychology, to illustrate procedures used in designing, conducting, reporting, and interpreting psychological research. Prerequisites: PSYCH 110, 150, and 240.

Abnormal Psychology (D)
PSYCH 280A, B

Abnormal behavior including major psychological disorders. Emphasis on various contemporary approaches to their understanding and treatment. Prerequisite: PSYCH 100 or 150. (F, S)

Motivation (D)
PSYCH 335

Introduction to theories and research on the nature and determinants of motivation. Topics include instinct, behavior energization concepts, biological and acquired bases of emotions and motives, frustration, conflict, and stress. Prerequisite: PSYCH 110. (S)

Psychology of Adolescence (D)
PSYCH 355A

The development and emotional, social and intellectual adjustment of the individual during adolescence. Prerequisite: PSYCH 100 or 150. (F)

Social Psychology (D)
PSYCH 360

Introduction to the principles and study of social behavior. The psychological factors involved in attitude formation and change, communication and persuasion, and small group processes. Prerequisite: PSYCH 100 or 150. (S)

Personality (D)
PSYCH 370

Introduction to the scientific study of personality. Personality development, structure and dynamics from major theoretical orientations. Prerequisite: PSYCH 100 or 150. (F)

PUBLIC HEALTH

Dynamics of Personal and Community Health PUB HL 123

Development of understanding and attitudes relative to personal, family and community health needs. Attention to mental and physical well-being, drugs, sexuality, communicable and chronic diseases and health services. (F)

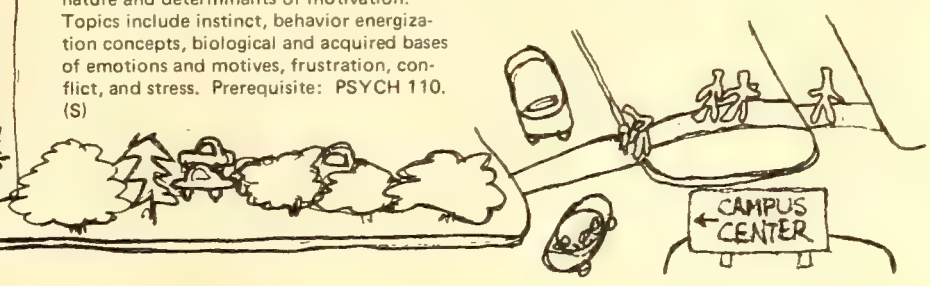
Public Health Statistics
PUB HL 540

Principles of statistics applied to the evaluation of public health practices. Prerequisite: permission of instructor. (F)

RHETORIC

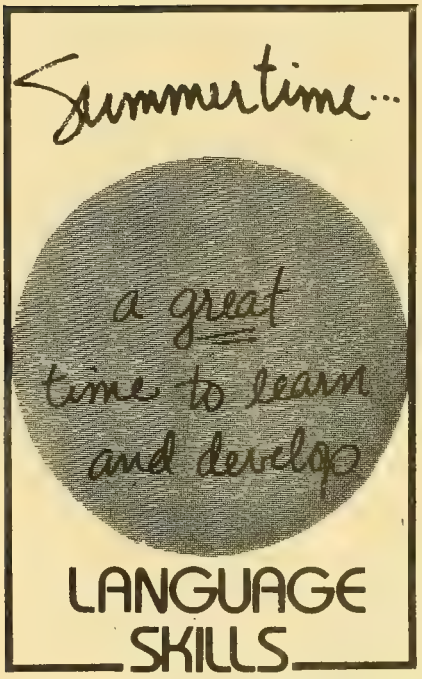
Elements of Writing (B)
RHET 100G

Basic language behavior; several writing assignments. Emphasizes writing, editing, and re-writing to attain clarity in the use of words, syntax, and organization. Subject matter is interdisciplinary. (*Not* a remedial writing course.) (F, S)



Elements of Public Speaking (B)
RHET 110A

Focuses on improvement of skills in interpersonal and public communication situations. Primary concerns are selection, arrangement and development of ideas and materials for oral communication; the use of language for conveying meaning, thinking, reasoning, problem solving and decision making; analysis of audience attitudes and beliefs; identification of purpose and assessment of effects of communication; ethical considerations in influencing others; and evaluation of one's own and others' public messages. (F, S)



SCHOOL OF BUSINESS ADMINISTRATION

Advanced Federal Tax Procedures
SBA 572

A continuation of ACCTG 371 emphasizing corporations, partnerships, estates and trusts, gifts and estate taxes, tax planning and research. Prerequisite: ACCTG 371. (S)

CPA Law
SBA 583

Legal concepts and rules encountered in business transactions, with particular attention to subjects currently included in CPA examinations. Prerequisite: GBFIN 260 or permission of instructor. (F)

Introduction to Business Economics
SBA 602

Microeconomic analysis and application to business decisions such as: cost and profit analysis; demand and pricing; investment analysis and capital budgeting; and economic forecasting. (F)

Introduction to Accounting
SBA 608

Principles underlying preparation of financial statements and the development and application of accounting data for planning and control. (F)

Business Finance
SBA 609

Basic concepts, principles and practices involved in financing businesses and in maintaining the efficient operation of the firm. Framework for analyzing the savings-investment and other financial decisions. Both theory and techniques applicable to financial problem-solving. Prerequisites: BA 602, 605, and 608. (F)

Accounting in Management
SBA 730

Production and use of accounting and other quantitative data for decision making related to planning and control. Prerequisite: BA 608. (F)

Accounting Systems
SBA 733

Accounting systems and their relationship to other business information system. Prerequisite: graduate accounting status or permission of instructor. (F)

Financial Management
SBA 740

Internal financial problems of firms; capital budgeting, cost of capital, dividend policy, rate of return, and the financial aspects of growth. Readings and cases. Prerequisite: BA 609. (F)

Business Data Analysis
SBA 750

Statistical methods employed in collection, analysis, and interpretation of data. Business applications of sampling, analysis of variance, experimental design, regression analysis, and forecasting models. Prerequisites: BA 601 and 605. (F)

Marketing Management
SBA 760

Marketing concepts of planning, organization, control, and decision-making from the viewpoint of the business executive. Stress on tools available for analysis and control of marketing activities. Prerequisites: BA 605, 606, 608, and 609. (F)

Business Policy
SBA 789

Capstone course requiring application of knowledge, theories, and techniques derived from previous courses, using integrative cases and empirical observations to formulate improved policies and plans. Prerequisites: BA 730, 740, 760, and 780. (S)

SOCIOLOGY

Social Problems (D)
SOCIOL 103

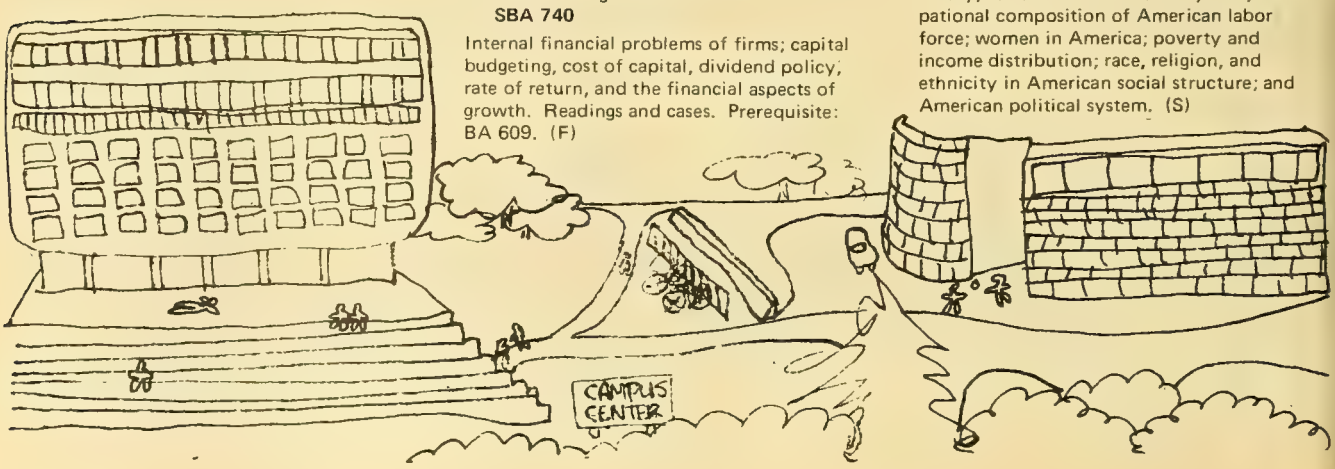
Distribution and interrelationships among some types of deviance and disorganization; crime, mental disorders, addiction, suicide, family tension. Theories of causation; research projects. (S)

Race, Sex, and Social Class: Inequality in America (D) SOCIOL 106

Differential distribution of opportunities and rewards in society. Manner in which membership in particular race, sex, or social class grouping may increase or diminish opportunities for positions of power, social prestige, economic security and psychological rewards. (F)

Contemporary American Society (D)
SOCIOL 107

Introduction to sociology emphasizing contemporary American society. Current theories of organization of modern industrial societies focusing on America. Topics: socialization in contemporary American family, American educational system, occupational composition of American labor force; women in America; poverty and income distribution; race, religion, and ethnicity in American social structure; and American political system. (S)



Work and Society (D)
SOCIOL 220

Contrasting ways selected industrial and developing societies (e.g., Russia, China, Israel, Japan, Cuba, U.S.) are organized to elicit work effort. Basic data on the U.S. work scene: occupational and income distributions, education and minority groups. (F)

The Family (D)
SOCIOL 222

Development of customs of courtship and marriage and contemporary family. Basic causes of changes and trends of the family. (S)

Criminology (D)
SOCIOL 241

Nature of crimes and factors underlying criminal behavior. Machinery of justice: law, courts, police systems, and correctional institutions. (S)

SPANISH

Elementary Spanish
SPAN 110, 120

For students with no previous creditable training in Spanish. Intensive practice in language skills. To fulfill the language requirement, upon completion of the course most students are required to continue by taking SPAN 130, 140. (110, F; 120, S)

Elementary Spanish—Intensive
SPAN 126

Emphasis on oral aspect. Designed to allow completion of SPAN 110 and 120 in one semester. Credit: 6. (F)

Intermediate Spanish—Intensive
SPAN 146

Emphasis on conversation in Spanish and readings in Hispanic literature. Systematic review of grammar. Successful completion of this course satisfies the foreign language requirement. Prerequisite: SPAN 126. (S)

History and Theory of Hispanic Bilingualism SPAN 574

A survey of the history of contact between different linguistic and cultural groups, and of the theories of the nature and consequences of these contacts. Emphasis on the Hispanic world and Spanish- and Portuguese-speaking groups in the U.S. Prerequisite: SPAN 570. (S)

SPORT STUDIES

Internship in Sport Management
SPORST 769

On the job learning experience in a sport organization. Credit: 12. (X)

leonard bernstein festival
of american music

presents
THE DUKE ELLINGTON ORCHESTRA
under the direction of
mercer ellington
july 2, 1978 8:00 pm
fine arts center concert hall
ticket information call (413) 545-0022

STATISTICS

Elementary Statistics (E)
STATIS 121

Selected topics in elementary probability and statistics: discrete models for chance experiments, conditional probabilities; "odds" and betting schemes, combinatorics, averages and standard deviation, random sampling, binomial and normal distributions, regression, statistical inference, chi square test. Students who intended to use statistics as a research tool, but who do not have a calculus background, should elect STATIS 431, 432. Students with calculus background should elect STATIS 415, 416. Credit given for only one of the courses STATIS 121, 140, 431, 415. (X)

Statistics for Business (E)
STATIS 140

Required of all undergraduates in the School of Business Administration. A one-semester introductory course. Descriptive statistics, a small amount of probability theory, and an introduction to the ideas of statistical inference. Topics include frequency distributions and measures of central tendency and of dispersion, linear regression, probability, the binomial and normal distributions, internal estimation, and hypothesis testing. (F, S)

THEATER

Introduction to Theater (C)
THEATR 100

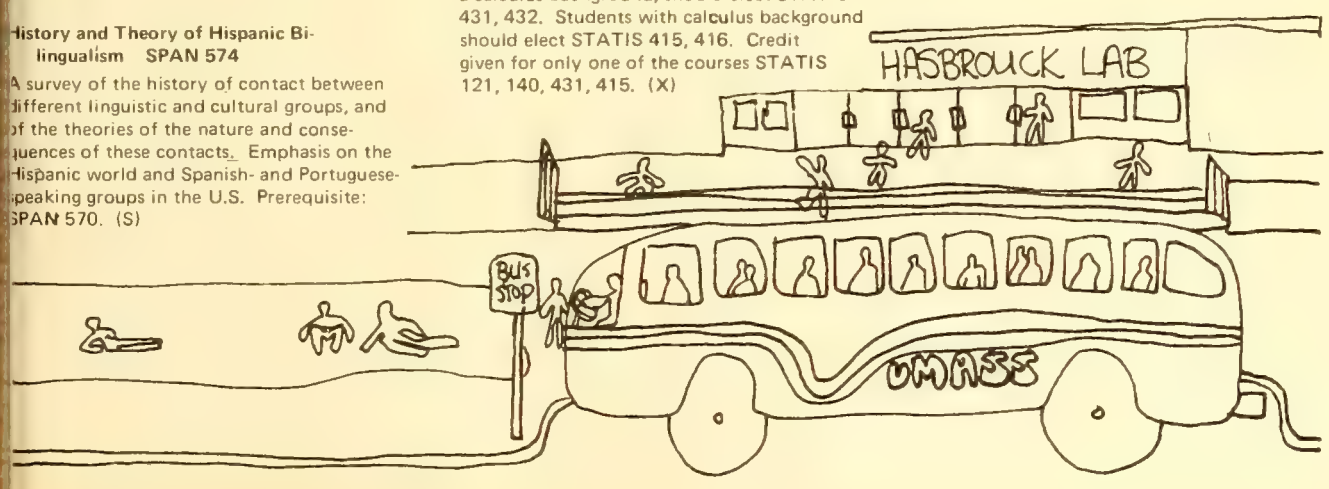
The art of the theater, its influences, and its place in society; elements, forms, and contributing artists. No prerequisites; open to freshmen. (F, S)

Techniques of Oral Performance
THEATR 490A

Principles and techniques of reading aloud; a dramatic and rhetorical approach. Emphasis on solo performance, on analysis of literature (prose and verse forms), and on problems of presenting it orally. Specific vocal needs relevant to communicating meaning. Principally for teachers or those training to be teachers. Available for undergraduate or graduate credit. Basic text: Charlotte Lee, *Oral Interpretation*, (4th edition). (S)

This summer the Department of Theater will again host the new professional production company, The Commonwealth Stage, Ltd. The company performed an inaugural season of three major productions last summer in the Rand Theater of the Fine Arts Center.

The presence of the professional company, a League of Resident Theater organization and the most recent to emerge in this country, presents a unique opportunity for students who are interested in theater. On-the-job



training is provided for all who are accepted into the credit-bearing Intern Program.

This summer's Intern Program will include a second section related to the front-of-house and administrative side of the theater. Press agentry, audience development, company management, and other business activities will be handled by students whose pursuits in journalism or business have permitted them to develop interest in the field of arts management.

The Intern Program—either the Production Section or the Management Section—is available by special application to the Department of Theater. Inquiries are welcomed by the Production Manager of the Department of Theater, Fine Arts Center, Room No. 112, University of Massachusetts, Amherst, MA 01003, telephone (413) 545-3490.

REGISTER BY MAIL

WOMEN'S STUDIES

Feminist Writing Workshop
WOST 190A

Students concentrate on and develop writing skills by finding voices that express the meaning of their lives as women. Focus on journal writing and narrative prose, autobiography and short fiction. Emphasis on the use of material from students' lives: breakthroughs in style and subject matter; how language is used by and about women in daily life; the relationship between women's personal lives and the social and political context in which we live. Long-term course focus is a group project on the theme of mothers and daughters, using material gathered from interviews, life experience, stories handed down by our mothers. Weekly assignments for the first seven weeks: journal writing. Topics include: definitions of feminist writing; sex-differentiation in language; images of women in literature; feminist literary criticism. (F)

Women in Cross-Cultural Perspective
WOST 290A

The lives of women in other societies, past and present; expanding our awareness of women's status in our own culture and the world. How have women been treated in different societies and why? What have women done to reinforce or change their social status in different cultures? What do we know of the evolution of women's status from the earliest prehistoric times to the present? How can we use information about women's position in other societies to further our own goals in this society? Discussion format, with reports by class members on research topics of interest to them. (S)

ZOOLOGY

Introductory Zoology (E)
ZOOL 101

Zoological areas of interest to humans personally and collectively including certain aspects of anatomy, physiology, inheritance, evolution, behavior, and ecology. (F)

Introductory Physiology (E)
ZOOL 235

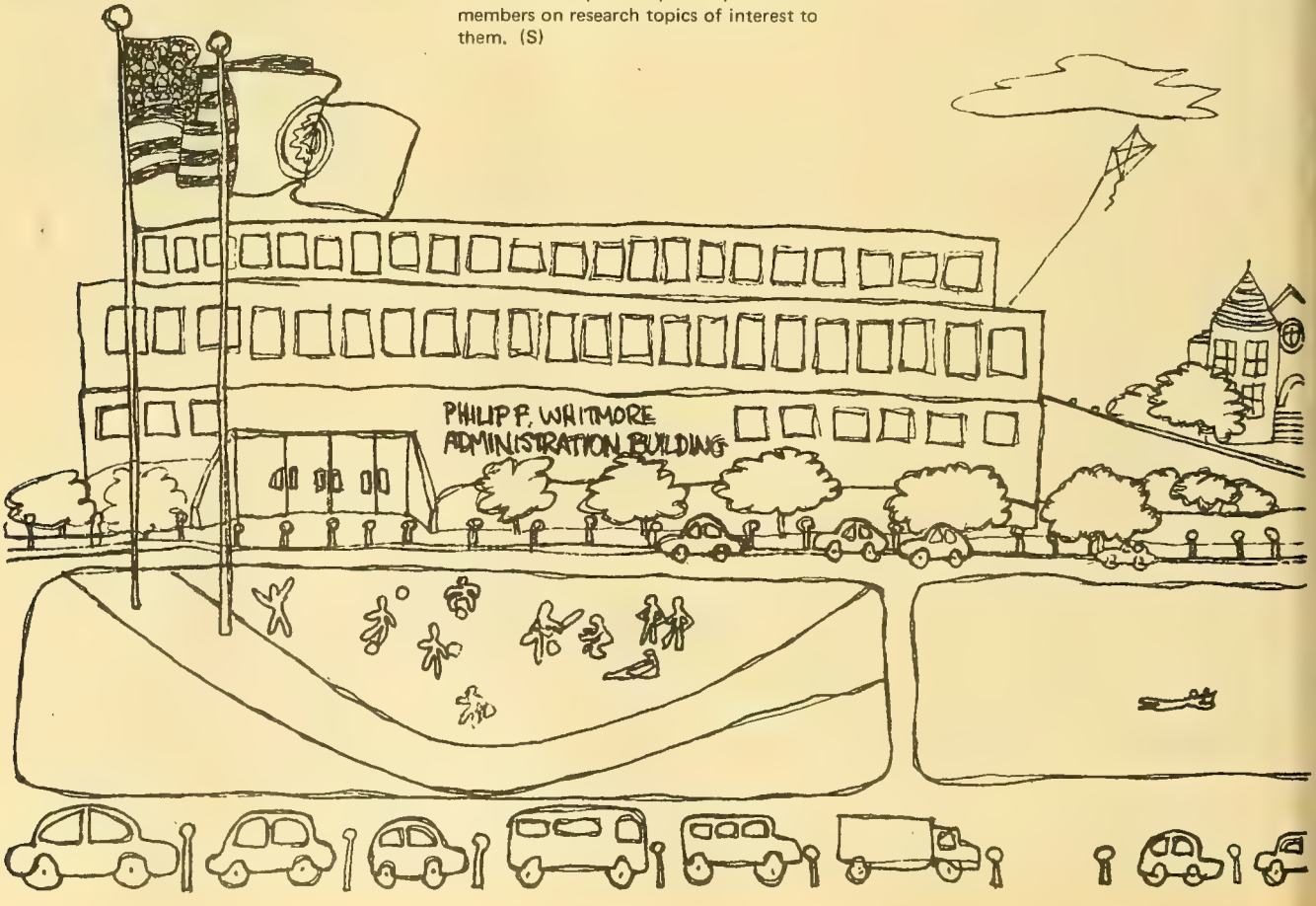
Circulation, respiration, digestion, metabolism, excretion, hormonal and nervous coordination, muscular activity, and reproduction in the human. Prerequisite: ZOOL 101 or equivalent. (F)

Biology of Behavior (E)
ZOOL 250

An overview of the science of animal behavior geared towards the non-scientist. Includes information on ethology, behavioral ecology, communication, sociobiology, learning, and the relationship of animal studies to the study of human behavior. Relevant films and demonstrations. Stresses an understanding of animal behavior, not detailed memorization. (S)

Comparative Vertebrate Anatomy
ZOOL 521

A detailed approach, by organ system, to the structure and evolutionary relationships of the vertebrates. Evolutionary and functional significance of structures in different groups. Laboratory exposure to the skeletal system of a variety of vertebrates and dissection of soft structures of a few representative forms. Prerequisite: ZOOL 190 or 101. (S)



Summer International Programs

FRENCH STUDIES AT DIJON

In its study program at Dijon in France, July 3 to August 15, the French Department offers up to six graduate and undergraduate credits in French, History, Political Science and Art. Intermediate competence in written and spoken French is a prerequisite for courses in History, Political Science and Art. Excursions to Bezelay, the Cote d'Or, and the Jura and Vosges Mountains are part of the program.

Cost to the student is approximately $775 for tuition, textbooks, room and board for the six weeks, and the tours; price does not include trans-Atlantic and independent travel and miscellaneous personal expenses. Contact: Professor Christian Garaud, Department of French, Herter Hall, University of Massachusetts, Amherst, MA 01003.

BERLIN-FREIBURG SUMMER PROGRAM

The Department of Germanic Languages and Literatures sponsors a summer program in Germany with seven days in Berlin and five weeks in Freiburg. Courses include Intermediate and Advanced German conversation and composition, and Seminars in Modern German Literature. Students earn six University of Massachusetts credits. There is a two week period for independent travel in Europe between the sessions in Berlin and in Freiburg. Dates of the program are June 12 to August 15.

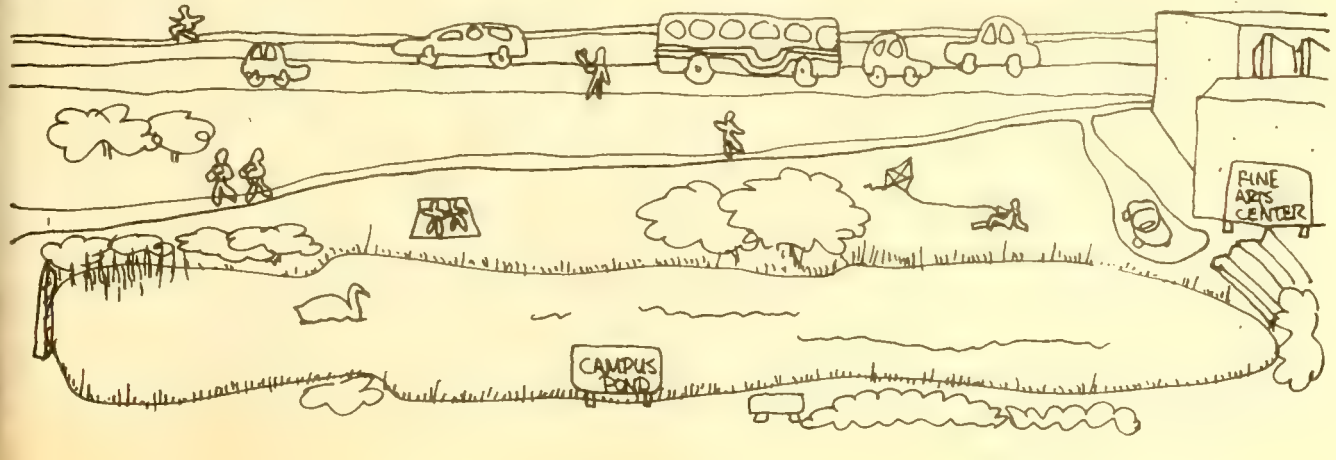
The estimated fee of $1,125 will cover transportation, room and board, and special excursions to a number of places of cultural and historic interest, including East Berlin, Switzerland and the Black Forest. It does not include expenses incurred during the independent travel. The program is open to undergraduates and to graduates by permission. Although applications for the summer program closed February 15, those interested in next year's courses may contact the Director of the Berlin-Freiburg Summer Program, Department of Germanic Languages and Literatures, Herter Hall, University of Massachusetts, Amherst, MA 01003.

OXFORD SUMMER SEMINAR

There are 13 humanities courses offered at Trinity College, Oxford, during July and part of August. Also included is a special Shakespeare course that uses the productions at Stratford-upon-Avon. The courses are all taught by Oxford dons, current or former, and the Bodleian Library is available for extensive research. All courses carry regular University of Massachusetts credit. Graduate and undergraduate credit is offered and courses vary each year according to the availability of specialists at Oxford and the interests of the student. Guest evening lectures by noted authorities supplement these offerings. Overall cost to the student is $1,000, including room and board and many extras. The program participants may use the Five-College charter flight which leaves Boston on June 12 and returns on August 15. If interested contact Professor Ernest Hofer, Associate Dean, Humanities and Fine Arts, South College, University of Massachusetts, Amherst, MA 01003, by March 15, 1978.

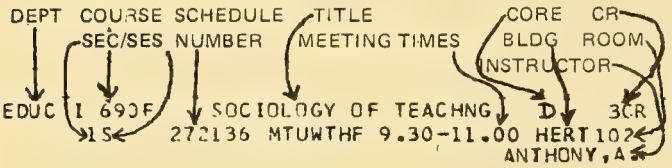
SUMMER PROGRAM IN LISBON

The Department of Spanish and Portuguese sponsors a summer program in Lisbon which runs from July 11 to August 13. Courses include Language, Literature and Culture. Students earn six University of Massachusetts credits. The fee is $425 and covers tuition, tutors and bed and breakfast and special excursions to places of cultural and historic interest. Students wanting to travel throughout Portugal can do so either prior to or after the courses. Knowledge of Portuguese is not a prerequisite for participation in the program. Deadline for application is April 30, 1978. If interested please contact: Professor Francisco Fagundes, Department of Spanish and Portuguese, 408 Herter Hall, University of Massachusetts, Amherst, MA 01003.



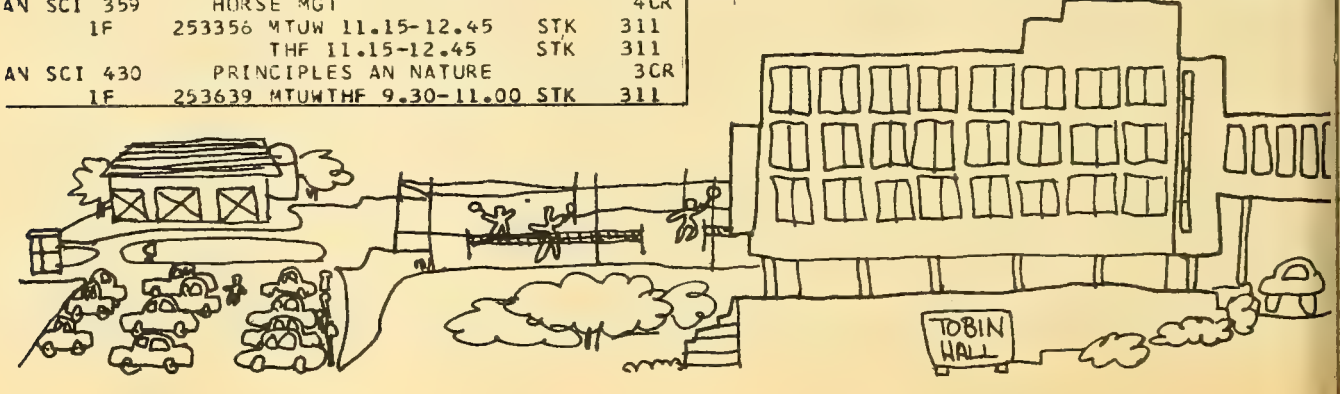
SCHEDULE OF CLASSES

All courses in this schedule are listed alphabetically by Departmental abbreviation and should be read as shown below. Please note that names of course instructors are provided when available.



DEPT	COURSE SEC/SES	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE BLDG	CR ROOM INSTRUCTOR
A-C-C-O-U-N-T-I-N-G					
ACCTG	221		INTRO ACCTG I		3CR
	1F	250037	MTUWTHF 9.30-11.00	HERT	225
	2F	250065	MTUW 11.15-12.45	HERT	225
			THF 11.15-12.45	HERT	225
	3F	250093	MTUW 19.00-21.30	HERT	224
	4S	250126	MTUWTHF 9.30-11.00	HERT	201
ACCTG	222		INTRO ACCTG II		3CR
	1F	250409	MTUWTHF 9.30-11.00	HERT	217
	2S	250437	MTUWTHF 9.30-11.00	HERT	202
ACCTG	321		FINAN RPTG I		3CR
	1F	250710	MTUW 11.15-12.45	HERT	217
			THF 11.15-12.45	HERT	217
ACCTG	322		FINAN RPTG II		3CR
	1S	250998	MTUW 11.15-12.45	HERT	202
			THF 11.15-12.45	HERT	202
ACCTG	371		FEDERAL TAXES		3CR
	1F	251275	MTUWTHF 7.45-9.15	HERT	217
A-N-I-M-A-L S-C-I-E-N-C-E					
AN SCI	101		INTRO AN SCI		3CR
	1F	251558	MTUWTHF 7.45-9.15	STK	311
AN SCI	150		BEG EQUITATION I		1CR
	1F	251831	MTUWTH 8.00-9.00	TILL	FARM
	2S	251869	MTUWTH 8.00-9.00	TILL	FARM
AN SCI	151		BEG EQUITATION II		1CR
	1F	252146	MTUWTH 4.00-5.00	TILL	FARM
	2S	252174	MTUWTH 4.00-5.00	TILL	FARM
AN SCI	152		INT EQUITATION I		1CR
	1F	252457	MTUWTH 9.30-10.30	TILL	FARM
	2S	252485	MTUWTH 9.30-10.30	TILL	FARM
AN SCI	153		INT EQUITATION II		1CR
	1F	252768	MTUWTH 4.30-5.30	TILL	FARM
	2S	252796	MTUWTH 4.30-5.30	TILL	FARM
AN SCI	241		SP PROB IN TRAINING		3CR
	1F	253073	MTUWTH 18.00-19.00	TILL	FARM
AN SCI	359		HORSE MGT		4CR
	1F	253356	MTUW 11.15-12.45	STK	311
			THF 11.15-12.45	STK	311
AN SCI	430		PRINCIPLES AN NATURE		3CR
	1F	253639	MTUWTHF 9.30-11.00	STK	311

DEPT	COURSE SEC/SES	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE BLDG	CR ROOM INSTRUCTOR
A-N-T-H-R-O-P-O-L-O-G-Y					
ANTH	102		INTRO TO ARCHAEOLOGY	D	3
	1F	253912	MTUW 11.15-12.45	MACH	W-1
			THF 11.15-12.45	MACH	W-1
ANTH	103		INTRO PHYSICAL ANTH	E	3
	1S	254194	MTUWTHF 9.30-11.00	MACH	W-1
ANTH	104		INTRO CULTURAL ANTH	D	3
	1F	254477	MTUW 19.00-21.30	MACH	W-1
ANTH	577		FIELD SCHOOL IN ARCH		6
			NOT FOR GRADUATE CREDIT.		
			CLASS WILL MEET 6/5/78-7/15/78.		
	1X	254750	BY ARRGT		
A-R-T					
ART	100		BASIC DRAWING	C	3
	1F	255037	MTUWTHF 1.30-4.30	FAC	43
					DAVIS,H
ART	101		DRAWING COMPOSITION	C	3
	1S	255310	MTUWTHF 1.30-4.30	FAC	43
					RETZ,R
ART	102		BASIC DESIGN I	C	3
	1F	255598	MTUWTHF 9.00-12.00	FAC	43
ART	103		BASIC DESIGN II LAB FEE $6	C	3
	1S	255871	MTUWTHF 9.00-12.00	FAC	43
ART	230		PHOTOGRAPHY I		3
	1S	256153	MTUWTHF 9.00-12.00	FAC	43
					TEARLE,P
ART	250		DESIGN I LAB FEE $3		3
	1F	256431	MTUWTHF 9.00-12.00	FAC	44
					RUPP,H
ART	280		CERAMICS I LAB FEE$10	C	3
	1F	256714	MTUWTHF 9.00-12.00	MUNX	
ART	350		INT DESIGN III LAB FEE $3		3
	1F	256992	MTUWTHF 9.00-12.00	FAC	44
ART	550		INTERIOR DESIGN III LAB FEE $3		3
	1F	257279	MTUWTHF 9.00-12.00	FAC	44
					RUPP,
A-R-T H-I-S-T-O-R-Y					
ARTHIS	522		MOD ART 1880-PRESENT	C	3
			NOT FOR GRADUATE CREDIT.		
	1S	257552	MTUWTHF 9.30-11.00	BART	21
					SCHINDLER,R
ARTHIS	526		AMERICAN ART	C	3
			NOT FOR GRADUATE CREDIT.		
	1F	257835	MTUWTHF 9.30-11.00	BART	31
					BRADLEY,B



DEPT	COURSE	SEC/SES	SCHEDULE NUMBER	MEETING TIMES	TITLE	CORE	BLDG	ROOM	INSTRUCTOR	CR
A-S-T-R-O-N-O-M-Y										
ASTRON	100				EXPLORING UNIVERSE	E				3CR
		1F	258112	MTUWTHF 7.45-9.15			HAS	134		
		2S	258140	MTUW 19.00-21.30			HAS	126		
B-U-S-I-N-E-S-S A-D-M-I-N-I-S-T-R-A-T-I-O-N										
BA	210				INTRO TO BUS COMP LAB FEE$17					3CR
		1F	258423	MTUWTHF 7.45-9.15			HERT	225		
		2S	258451	MTUW 11.15-12.45			HERT	201		
				THF 11.15-12.45			HERT	201		
BA	497				BUS POLICY & STRAT					3CR
		1S	258734	MTUWTHF 9.30-11.00			HERT	206		
B-I-O-C-H-E-M-I-S-T-R-Y										
BIOCHM	420				ELEMENTARY BIOCHM	E				3CR
		1F	259011	MTUWTHF 9.30-11.00			GTWR	203		
									DETOMA	
BIOCHM	421				ELEM BIOCHM LAB LAB FEE$10					1CR
LEC		1F	259299	TUTH 2.30-4.00			GOES	256		
									DETOMA	
DIS		1F	259344	TUTH 1.30-2.30			GTWR	203		
									DETOMA	
B-O-T-A-N-Y										
BOTANY	191A				SEM-FIELD BOTANY					3CR
LEC		1F	259627	MWF 11.15-12.45			MOR	301		
LAB		1F	259677	MW 1.30-4.00			MOR	301		
C-I-V-I-L E-N-G-I-N										
C E	240				STATICS					3CR
		1F	259950	MTUWTHF 7.45-9.15			GUN	11		
C E	241				STRENGTH OF MATL I					3CR
		1F	260230	MTUW 11.15-12.45			GUN	11		
				THF 11.15-12.45			GUN	11		
C-H-E-M-I-S-T-R-Y										
CHEM	110				GEN CHEM LAB FEE $8 E					4CR
LEC		1S	260513	MTUWTHF 9.30-11.00			GTWR	101		
LAB		1S	260563	TUTH 1.30-4.30			GOES	57		
CHEM	111A				GEN CHEM-SCI LAB FEE $8 E					4CR
LEC		1F	260846	MTUWTHF 9.30-11.00			GOES	PET		
LAB		1F	260896	MW 1.30-4.30			GOES	57		
CHEM	111B				GEN CHEM-SCI LAB FEE $8 E					4CR
LEC		2F	261173	MTUW 11.15-12.45			GOES	PET		
				THF 11.15-12.45			GOES	PET		
LAB		2F	261228	TUTH 1.30-4.30			GOES	57		
CHEM	112A				GEN CHEM-SCI LAB FEE $8 E					4CR
LEC		1S	261501	MTUWTHF 9.30-11.00			GOES	PET		
LAB		1S	261551	MW 1.30-4.30			GOES	57		
CHEM	112B				GEN CHEM-SCI LAB FEE $8 E					4CR
LEC		2S	261834	MTUW 11.15-12.45			GOES	PET		
				THF 11.15-12.45			GOES	PET		
CHEM	250				ORGANIC CHEMISTRY	E				3CR
		1S	262161	MTUWTHF 9.30-11.00			GTWR	203		
CHEM	252				ORGANIC CHEM LAB LAB FEE$15					1CR
		1S	262444	MTUTH 1.30-4.30			GTWR	1507		
CHEM	261				ORGANIC NON-MAJ	E				3CR
		1F	262727	MTUWTHF 9.30-11.00			GTWR	103		
CHEM	262				ORGANIC NON-MAJ	E				3CR
		1S	263004	MTUWTHF 9.30-11.00			GTWR	103		
CHEM	263				ORGANIC LAB NON-MAJ LAB FEE$15					1CR
		1F	263282	MTUTH 1.30-4.30			GTWR	1507		
CHEM	264				ORGANIC LAB NON-MAJ LAB FEE$15					1CR
		1S	263565	MTUTH 1.30-4.30			GTWR	1507		
C-O-M-P-U-T-E-R & I-N-F-O-R-M-A-T-I-O-N S-C-I-E-N-C-E										
COINS	102				COMPUTER & SOCIETY LAB FEE$10	E				3CR
		1F	263848	MTUW 19.00-21.30			GRES	301		
COINS	122				INTR PRB SOLV W/COMP LAB FEE$10	E				4CR
				CLASS WILL MEET 5/30/78-8/8/78.						
LEC		1X	264125	MWF 9.30-11.00			GRES	301		
LAB		1X	264175	M 1.30-2.30			GRES	208		
		2X	264208	TU 1.30-2.30			GRES	208		
		3X	264236	W 1.30-2.30			GRES	208		
		4X	264264	TH 1.30-2.30			GRES	208		
C-O-M-M-U-N-I-C-A-T-I-O-N D-I-S-O-R-D-E-R-S										
COMDIS	614				DIFFER DIAG SPELANG					3CR
				CLASS WILL MEET 6/27/78-8/5/78.						
		1X	264547	MTUWTHF 1.00-2.10			HERT	205		
									SEYMORE,C	
COMDIS	698A				PRAC-AUDIOLOGY					1-3
				CLASS WILL MEET 6/27/78-8/5/78.						
		1X	264820	BY ARRGT					GENGEL,R	
									KUPPERMAN,G	
COMDIS	698S				PRAC-SPEECH PATHOLOG					1-3
				CLASS WILL MEET 6/27/78-8/5/78.						
		1X	265107	BY ARRGT					PEIRCE,H	
C-O-M-P-A-R-A-T-I-V-E L-I-T-E-R-A-T-U-R-E										
COMLIT	101				INTRO TO COMLIT	C				3CR
		1F	265385	MTUW 19.00-21.30			HERT	225		
C-O-M-M-U-N-I-C-A-T-I-O-N S-T-U-D-I-E-S										
COMSTU	121				INTRO TO MASS COMM	D				3CR
		1S	265668	MTUWTHF 7.45-9.15			SC	108		
COMSTU	221				MEDIA PROGRAMMING					3CR
		1F	265941	MTUW 11.15-12.45			SC	108		
				THF 11.15-12.45			SC	108		
									DAVIS	
COMSTU	240				MODES OF FILM COMM LAB FEE$10					3CR
		1F	266228	MTUWTHF 9.30-11.00			SC	108		
									EDGERTON	
COMSTU	250				INTERPERSONAL COMM	C				3CR
		1F	266501	MTUW 19.00-21.30			MACH	W-22		
									JOHNSON,F	
		2S	266539	MTUWTHF 9.30-11.00			MACH	W-22		
									MIHEVC	
COMSTU	252				SMALL GRP COMMUNICAT					3CR
		1F	266812	MTUW 11.15-12.45			MACH	W-22		
				THF 11.15-12.45			MACH	W-22		
									CRONEN	
COMSTU	491C				SEM-CHILD & TELEVSN					3CR
		1S	267094	MTUW 19.00-21.30			MACH	413		
									FONTES,B	
COMSTU	791C				SEM-MASS MEDIA/CLSRM					3CR
				CLASS WILL MEET 7/12/78-7/30/78.						
		1X	267377	MTUWTHF 9.30-12.30			SC	108		
									DAVIS,L	

DEPT	COURSE SEC/SES	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE BLDG	CR ROOM INSTRUCTOR
E-C-O-N-O-M-I-C-S					
ECON	103		INTRO TO MICROECON	D	3CR
	1F	267650	MTUWTHF 7.45-9.15	MACH	E-16
ECON	104		INTRO TO MACROECON	D	3CR
	1S	267933	MTUWTHF 7.45-9.15	MACH	E-16
ECON	203		INTERMED MICROEC TH		3CR
	1F	268210	MTUW 11.15-12.45	MACH	E-35
			THF 11.15-12.45	MACH	E-35
ECON	204		INTERMED MACROEC TH		3CR
	1S	268498	MTUW 11.15-12.45	MACH	E-35
			THF 11.15-12.45	MACH	E-35
E-D-U-C H-U-M A-P-P-L S-O-C & B-E-H S-C-I					
EDUC H	490I		CLSRM MGT/DISCPL		3CR
	1S	268771	MTUWTHF 9.30-11.00	GTWR	321 SCHILLER,H.
EDUC H	591A		SEM-COG ACT ECE		3CR
			CLASS WILL MEET 8/2/78-8/22/78.		
	1X	269058	MTUWTHF 7.45-11.00	GTWR	113 DAY,D
EDUC H	591B		SEM-CREAT ACT ECE		3CR
			CLASS WILL MEET 7/12/78-8/1/78.		
	1X	269431	MTUWTHF 7.45-11.00	GRES	208 DAY,D
EDUC H	605		SCH COUNSLING THEORY		3CR
			CLASS WILL MEET 7/17/78-8/4/78.		
	1X	269614	MTUWTHF 1.00-4.00	GRES	201 SHENARD,P
EDUC H	631	LAB FOR COUNS SKILLS	LAB FEE $5		3CR
			CLASS WILL MEET 8/7/78-8/18/78.		
	1X	269892	MTUWTHF 1.00-5.30	GRES	210 PRESSLEY,B
EDUC H	677		PRINCS OF SCH GUID		3CR
			CLASS WILL MEET 6/26/78-7/14/78.		
	1X	270172	MTUWTHF 1.00-4.00	GRES	308 PIPPERT,R
EDUC H	747		FAMILY COUNSELING	LAB FEE $5	3CR
	1F	270455	MW 4.00-19.45	GTWR	204 COPPERSMITH,E
E-D-U-C I-N-S-T-R-U-C-T-I-O-N-A-L L-E-A-D-E-R-S-H-I-P					
EDUC I	428		RDG INST-PRIN&STRAT		3CR
	1F	270738	MTUWTHF 7.45-9.30	HERT	107 BACON,J.
EDUC I	461		P/M READ/LA/EL SCH		3CR
			CLASS WILL MEET 5/30/78-6/19/78,		
	1X	271015	MTUWTHF 9.00-12.00	HERT	102 RUDMAN,M
EDUC I	509		METHODS IN SEC ENGL		3CR
			CLASS WILL MEET 6/20/78-7/11/78.		
	1X	271293	MTUW 19.00-22.00	HERT	114
			THF 19.00-22.00	HERT	114 ULIN,R
EDUC I	590V		FUND BILING/BICUL ED		3CR
			CLASS MEETS 6/20-7/11 AT THE LISTED TIME AND ALSO 6/3,6/10,6/17,6/24, AT 8.30-12.00 IN GRES 309.		
	1X	271576	MTUWTHF 9.30-11.00	HERT	108 FUENTES,N.
EDUC I	615		WORKSHOP IN EDUCATN		2-6
	1X	271859	BY ARRGT		BUNKER,R.M
EDUC I	690F		SOCIOLOGY OF TEACHNG		3CR
	1S	272136	MTUWTHF 9.30-11.00	HERT	102 ANTHONY,A.
EDUC I	691A		SEM-READING		3
			CLASS WILL MEET 5/30/78-6/19/78.		
	1X	272419	MTUW 19.00-22.00	HERT	11
			THF 19.00-22.00	HERT	11 RUDMAN,I
EDUC I	790J		ISS INQUIRY TEACHING		3
	1S	272697	MTUW 11.15-12.45	GRES	21
			THF 11.15-12.45	GRES	21 ANTHONY,A
EDUC I	791C		SEM-EDUCATION		3
	1S	272970	MTUWTHF 7.45-9.15	HERT	10 THELEN,L
E-D-U-C P-O-L-I-C-Y S-T-U-D-I-E-S					
EDUC P	351		FOUNDATIONS OF EDUC		3
	1F	273257	MTUW 11.15-12.45	GTWR	20
			THF 11.15-12.45	GTWR	206 FEDER,J
					BENANDER,D
EDUC P	506	OVERVIEW OF EVALUATN	LAB FEE $3		3
			CLASS WILL MEET 5/30/78-6/23/78.		
	1X	273530	MTUTH 10.00-1.00	GTWR	21 QUILLING,
EDUC P	590Q		DEATH AND DYING EDUC		3
			CLASS WILL MEET 7/12/78-8/1/78.		
	1X	273813	MTUWTHF 1.00-4.00	HERT	202 ULIN,R
EDUC P	590T		PHIL IN THE CLSRM		3
	1F	274095	TUTH 4.00-19.45	GTWR	206 WELLMAN,R
EDUC P	615		WORKSHOP IN EDUCATN		2-
			CLASS MEETS 6/7,6/8,6/14,6/15,6/27 6/28,6/29/78.		
	1X	274378	WTH 9.00-4.00	GTWR	216 THUEMMEL,W
EDUC P	691D		SEM-AG ED ON WHEELS	LAB FEE$25	3
			CLASS WILL MEET 7/10/78-7/14/78.		
	1X	274651	MTUWTHF 8.00-5.00	GTWR	21 THUEMMEL,I
E-N-G-L-I-S-H					
ENGL	151		TECHNICAL WRITING		2
	1F	274934	MTUWTHF 8.15-9.15	GTWR	10
ENGL	172		MAJOR BRIT WRITERS	C	3
	1S	275211	MTUW 19.00-21.30	HERT	11
ENGL	273		19TH C AMERICAN LIT	C	3
	1S	275499	MTUW 11.15-12.45	HERT	20
			THF 11.15-12.45	HERT	20
ENGL	354		CREATIVE WRITING		3
	1F	275772	MTUW 19.00-21.30	HERT	11
F-O-R-E-S-T-R-Y					
FOREST	225		MENSURATION	LAB FEE$10	3
			CLASS WILL MEET 5/29/78-6/16/78.		
	1X	276059	MTUWTHF 8.00-5.00	HOLD	302 MAWSON,J.C
F-R-E-N-C-H					
FRENCH	110		ELEMENTARY FRENCH		3
	1F	276332	MTUWTHF 9.30-11.00	HERT	201 KOZLOW
FRENCH	144		INTERM FICTION		3
	1F	276615	MTUW 11.15-12.45	HERT	201
			THF 11.15-12.45	HERT	201 HILTON,C

DEPT	COURSE	SEC/SES	SCHEDULE NUMBER	MEETING TIMES	CORE	BLDG	ROOM	CR	INSTRUCTOR
F-O-O-D S-C-I-E-N-C-E & N-U-T-R-I-T-I-O-N									
FSCN	130			PEOPLE & NUTRITION	E			3CR	
		1F	276893	MTUWTHF 9.30-11.00		CHEN	113		BERT,M
G-E-N-E-R-A-L B-U-S-I-N-E-S-S F-I-N-A-N-C-E									
GB FIN	250			ADMINISTRATIVE STAT LAB FEE $6				3CR	
		1F	277170	MTUW 11.15-12.45		HERT	202		
				THF 11.15-12.45		HERT	202		BICKFORD,D
		2S	277203	MTUWTHF 7.45-9.15		HERT	204		FINEBERG,A
GB FIN	260			INTRO TO LAW				3CR	
		1F	277481	MTUW 19.00-21.30		HERT	107		GOLDMAN,S
GB FIN	301			CORPORATION FINANCE				3CR	
		1F	277764	MTUW 11.15-12.45		HERT	206		
				THF 11.15-12.45		HERT	206		SHELLEY
		2S	277792	MTUW 19.00-20.30		HERT	107		NUNN,K.
GB FIN	320			INVESTMENTS				3CR	
		1F	278079	MTUWTHF 9.30-11.00		GTWR	115		SCHNEEWEIS,T
GB FIN	472			SEM URBAN STUDIES				3CR	
		1F	278352	MTUWTHF 9.30-11.00		GTWR	113		BURAK,G
G-E-O-G-R-A-P-H-Y									
GEOG	155			INTRO TO HUMAN GEOG LAB FEE $2	D			3CR	
		1F	278635	MTUWTHF 9.30-11.00		MOR4	403		
GEOG	360			ECONOMIC GEOGRAPHY	D			3CR	
		1S	278918	MTUW 11.15-12.45		MOR4	403		
				THF 11.15-12.45		MOR4	403		
G-E-O-L-O-G-Y									
GEOL	101			PHYSICAL GEOLOGY LAB FEE $10	E			3CR	
LEC		1F	279190	MWF 9.30-11.00		MOR4	161		
LAB		1F	279245	MW 1.00-4.00		MOR	134		
G-E-R-M-A-N									
GERMAN	110			ELEMENTARY GERMAN				3CR	
		1F	279528	MTUWTHF 7.45-9.15		HERT	201		
GERMAN	120			ELEMENTARY GERMAN				3CR	
		1S	279801	MTUWTHF 7.45-9.15		HERT	201		
H-I-S-T-O-R-Y									
HIST	151			DEV AMER CIV 1876 ON	C			3CR	
		1F	280086	MTUWTHF 7.45-9.15		HERT	205		
		2S	280119	MTUW 19.00-21.30		HERT	116		
HIST	314			EUR INTELL HIST 20C	C			3CR	
		1F	280397	MTUW 19.00-21.30		HERT	201		
HIST	316			HISTORY OF RUSSIA II	C			3CR	
		1S	280670	MTUW 11.15-12.45		HERT	210		
				THF 11.15-12.45		HERT	210		
HIST	364			THE CIVIL WAR ERA	C			3CR	
		1S	280953	MTUW 19.00-21.30		HERT	210		
HIST	373			AMER THOT & CULTURE	C			3CR	
		1F	281230	MTUWTHF 9.30-11.00		HERT	210		
HIST	597A			SP TPC-EUR HIST/20C				3CR	
		1F	281513	MTUW 19.00-21.30		HERT	201		JOHNSTON,W.
HIST	597B			SP TPC-AM THOT/CULT				3CR	
		1F	281791	MTUWTHF 9.30-11.00		HERT	210		CANTOR,M.
HIST	597C			SP TPC-HIST RUSSIAII				3CR	
		1S	282078	MTUW 11.15-12.45		HERT	210		
				THF 11.15-12.45		HERT	210		JONES,R.
HIST	597D			SP TPC-CIVIL WAR				3CR	
		1S	282351	MTUW 19.00-21.30		HERT	210		SWENSON,P.
H-O-T-E-L R-E-S-T & T-R-A-V-E-L A-D-M-I-N									
HRTA	100			INTRODUCTION				3CR	
		1F	282634	MTUWTHF 7.45-9.15		FLIN	103		FLETCHER
HRTA	211			FOOD SERVICE MGT				3CR	
		1F	282917	MTUWTHF 9.30-11.00		FLIN	103		MANNING
HRTA	330			MGR ACCTG HOSP IND				3CR	
		1F	283199	MTUW 11.15-12.45		FLIN	103		
				THF 11.45-12.45		FLIN	103		LEWIS
I-T-A-L-I-A-N									
ITAL	126			INTENS ELEM ITALIAN				6CR	
		1F	283472	MTUWTHF 7.45-11.00		HERT	224		
J-O-U-R-N S-T-U-D-I-E-S									
JS	200			INTR NEWS & RPTNG				3CR	
				CLASS WILL MEET 5/30/78-6/17/78.					
		1X	283755	MTUWTHF 9.00-12.00		MACH	E-10		
JS	290P			PRIN OF PUB RELATION				3CR	
				CLASS WILL MEET 6/20/78-7/11/78.					
		1X	284037	MTUWTHF 9.00-12.00		MACH	W-11		
L-A-T-I-N									
LATIN	110			INTENSV ELEM LATIN				5CR	
		1F	284315	MTUWTHF 9.30-12.00		HERT	204		
LATIN	140			INTENS INTERMED LAT				5CR	
		1F	284593	MTUWTHF 9.30-12.00		HERT	205		
		2S	284626	MTUWTHF 9.30-12.00		HERT	204		
L-E-G-A-L S-T-U-D-I-E-S P-R-O-G-R-A-M									
LEGAL	250			INTRO LEGAL STUDIES				3CR	
		1F	284909	MTUWTHF 7.45-9.15		GRES	301		
LEGAL	371			SEX ROLES,LAW & SOC				3CR	
		1F	285181	MTUW 11.15-12.45		GRES	301		
				THF 11.15-12.45		GRES	301		
M-E-C-H-A-N-I-C-A-L E-N-G-I-N-E-E-R-I-N-G									
M E	210			MECHANICS I				3CR	
		1F	285464	MTUWTHF 7.45-9.15		GUN	11		
M E	211			MECHANICS II				3CR	
		1F	285747	MTUW 11.15-12.45		GUN	11		
				THF 11.15-12.45		GUN	11		
M E	230			THERMODYNAMICS I				3CR	
		1F	286024	MTUWTHF 9.30-11.00		GUN	11		
M-A-T-H-E-M-A-T-I-C-S									
MATH	101			ALGEBRAIC REVIEW				1CR	
				CLASS WILL MEET 5/31/78-6/20/78.					
		1X	286307	MTUWTHF 7.45-8.45		GTWR	201		
MATH	102			ANAL GEOM/ELEM FUNC				1CR	
				CLASS WILL MEET 6/21/78-7/11/78.					
		1X	286585	MTUWTHF 7.45-8.45		GTWR	315		

DEPT	COURSE SEC/SES	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE BLDG	CR ROOM INSTRUCTOR
MATH	103		PRECALC TRIG		1CR
			CLASS WILL MEET 7/12/78-8/1/78.		
	1X	286863	MTUWTHF 7.45-8.45	GTWR	201
MATH	120		MATH FOR BUSINESS I	E	3CR
	1F	287145	MTUWTHF 9.30-11.00	GTWR	204
MATH	121		MATH FOR BUSINESS II	E	3CR
	1S	287423	MTUWTHF 9.30-11.00	GTWR	204
MATH	127		CALC LIFE-SOC SCI I	E	3CR
	1F	287701	MTUWTHF 7.45-9.15	GTWR	204
MATH	128		CALC LIFE-SOC SCI II	E	3CR
	1S	287989	MTUWTHF 7.45-9.15	GTWR	204
MATH	131		CALC I	E	4CR
			CLASS WILL MEET 5/31/78-8/22/78.		
	1X	288266	MTUWTH 11.15-12.15	GTWR	315
MATH	132		CALC II	E	4CR
			CLASS WILL MEET 5/31/78-8/22/78.		
	1X	288549	MTUWTH 11.15-12.15	GTWR	321
MATH	233		MULTIVAL CALCULUS	E	3CR
			CLASS WILL MEET 5/31/78-8/1/78.		
	1X	288822	MTUWTH 11.15-12.15	GTWR	204
MATH	235		INTRO LIN ALG	E	3CR
			CLASS WILL MEET 5/31/78-8/1/78.		
	1X	289109	MTUWTH 9.30-10.30	GTWR	315
MATH	411		INTRO MOD ALG I	E	3CR
			CLASS WILL MEET 5/31/78-8/1/78.		
	1X	289387	MTUWTHF 7.45-9.15	GTWR	203
MATH	431		ORD DIF EQ/SCI ENG	E	3CR
			CLASS WILL MEET 5/31/78-8/1/78.		
	1X	289660	MTUWTH 9.30-10.30	GTWR	201
MATH	597A		SP TPC-GEOM/TCHRS		3CR
			CLASS WILL MEET 6/27/78-8/22/78.		
	1X	289943	MTUWTHF 8.15-9.15	GTWR	321
MATH	597B		SP TPC-PROSTAT TCHR		3CR
			CLASS WILL MEET 6/27/78-8/22/78.		
	1X	290223	MTUWTHF 9.30-10.30	GTWR	213
				FOULIS,D	

M-A-N-A-G-E-M-E-N-T

MGT	301		PRINCIPLES OF MGT		3CR
	1F	290506	MTUWTHF 7.45-9.15	GRES	201
	2S	290534	MTUW 19.00-21.30	HERT	113
MGT	314		PERSONNEL MANAGEMENT		3CR
	1F	290817	MTUW 19.00-21.30	HERT	113
	2S	290845	MTUWTHF 7.45-9.15	HERT	202
MGT	330		MANAGERIAL BEHAVIOR		3CR
	1F	291122	MTUW 11.15-12.45	HERT	210
			THF 11.15-12.45	HERT	210
MGT	331		ADMIN THEORY		3CR
	1S	291405	MTUWTHF 9.30-11.00	HERT	210
MGT	365		BUS & ITS ENVIRON		3CR
	1F	291683	MTUWTHF 9.30-11.00	GRES	201

M-I-C-R-O-B-I-O-L-O-G-Y

MICBIO	150		BIOL OF MICROORGNSMS	E	3CR
	1F	291966	MTUWTHF 9.30-11.00	MOR4	201
				DOWELL,C.E	

M-A-R-K-E-T-I-N-G

MKTG	301		FUND OF MKTG		3CR
	1F	292243	MTUW 19.00-21.30	HERT	116
	2S	292271	MTUWTHF 7.45-9.15	HERT	206
MKTG	412		MKTG RESEARCH		3CR
	1F	292554	MTUWTHF 9.30-11.00	GRES	307
				DILLON,W	
MKTG	422		MKTG COMMUNICATIONS		3CR
	1F	292837	MTUWTHF 7.45-9.15	GRES	307
				WEINBERGER,M	
MKTG	459		MKTG STRATEGY		3C
	1F	293114	MTUW 11.15-12.45	HERT	22
			THF 11.15-12.45	HERT	22
				SMITH,W	

M-U-S-I-C

MUSIC	100		APPRECIATION-INTRO	C	3
	1F	293392	MTUWTHF 9.30-11.00	FAC	15
				CHESNU	
MUSIC	110		ELEM MUS THEO-NONMAJ	C	3
			CLASS MEETS 5/30/78-6/19/78.		
	1X	293675	MTUWTHF 8.00-11.00	FAC	15
				STACKPOL	
MUSIC	113		ELEM MUSIC THEORY	C	3
	1F	293956	MTUWTHF 7.45-9.15	FAC	15
				NEUBER	
MUSIC	193A		SEM-EXPLTNS MUSIC		3
			CLASS MEETS 6/20/78-7/11/78.		
	1X	294235	MTUWTHF 8.00-11.00	FAC	15
MUSIC	591A		SEM-BERSTN FES WKSH		1-
			CLASS MEETS 6/26/78-7/23/78.		
	1X	294513	BY ARRGT		JENKINS,
MUSIC	591B		SEM-AMER MUS HIST		3C
			CLASS MEETS 6/26/78-7/23/78.		
	1X	294796	BY ARRGT		BOYE
MUSIC	591C		SEM-JAZZ PUB SCH		3C
			CLASS MEETS 6/26/78-7/9/78.		
	1X	295073	BY ARRGT		BROWN,T.D
MUSIC	591D		SEM-THRY/IMPVT/PFM		3C
			CLASS MEETS 6/26/78-7/9/78.		
	1X	295356	BY ARRGT		JAFFE,A
			CLASS MEETS 7/9/78-7/23/78.		
	2X	295384	BY ARRGT		JAFFE,A
MUSIC	591E		SEM-MU THTR/PUB SCH		1-
			CLASS MEETS 6/26/78-7/9/78.		
	1X	295667	BY ARRGT		DUBOIS,R
MUSIC	610		MUS LIT 1600-1750		3C
	1F	295940	MTUW 11:15-12:45	FAC	157
			THF 11:15-12:45	FAC	157
				BOYER	

P-H-Y-S E-D-, S-C-H-O-O-L O-F

P E	G02		PE 100 INTER SWIM		1C
	1S	296227	MTUWTH 11.15-12.45	BOYD	POOL
				KJELDSEN,E	
P E	G03		PE 100 DIST SWIM		1C
	1F	296500	MTUWTH 9.30-11.00	NOPE	POOL
				ALLARD,R	
	2S	296538	MTUWTH 9.30-11.00	NOPE	POOL
				ALLARD,R	
P E	G08		PE 100 ADV LIFE SAV		1C
	1F	296811	MTUWTH 7.45-9.15	NOPE	POOL
				CARUSO,V	
P E	G11		PE 100 JOB & COND		1C
	1F	297093	MTUWTH 7.45-9.15	BOYD	301
				ALLARD,R	
	2S	297126	MTUWTH 7.45-9.15	BOYD	301
				ALLARD,R	
P E	G14		PE 100 WT-YR WOMEN		1C
	1F	297409	MTUWTH 7.45-9.15	BOYD	301
				DAVIDSON,D	

DEPT	COURSE	SCHEDULE	TITLE	CORE	CR	BLDG	ROOM	INSTRUCTOR
E	G20		PE 100-GAME/PERS GRW		1CR			
	1F	297687	MTUWTH 9.30-11.00			BOYD	301	GRIFFIN,P
E	G21		PE 100-JOG & SELF-AW		1CR			
	1F	297960	MTUWTH 7.45-9.15			BOYD	301	GRIFFIN,P
E	G45		PE 100-BOWL I		1CR			
	1F	298247	MTUWTH 9.30-11.00			BOYD	253	ZUNIC,M
E	G55		PE 100-GOLF I		1CR			
	1S	298520	MTUWTH 9.30-11.00			BOYD	253	GARBER,D
E	G66		PE 100-TENNIS II		1CR			
	1F	298603	MTUWTH 9.30-11.00			NOPE	22	RIFE,F
	2S	298831	MTUWTH 11.15-12.45			BOYD	253	RIFE,F
	3S	298869	MTUWTH 9.30-11.00			NOPE	22	GUNDERSHEIM,J
E	G67		PE 100-TEN I & BOMTN		1CR			
	1F	299145	MTUWTH 11.15-12.45			BOYD	253	GUNDERSHEIM,J
	2F	299174	MTUWTH 9.30-11.00			BOYD	249	GUNDERSHEIM,J
	3F	299207	MTUWTH 7.45-9.15			NOPE	153	RIFE,F
	4S	299235	MTUWTH 7.45-9.15			NOPE	153	RIFE,F
E	G69		PE 100-CANOEING		1CR			
			CLASS WILL MEET 5/31/78-6/13/78, FIELD TRIP 6/17-6/18.					
	1X	299518	MTUWTH 3.00-5.00			NOPE	153	CARUSO,V
E	G70		PE 100-BACK PACKING		1CR			
			CLASS WILL MEET 5/31/78-6/13/78.					
	1X	299795	MTUWTHF 5.30-19.30			NOPE	22	CARUSO,V

P-R-O-F P-R-E-P-A-R-A-T-I-O-N I-N P-H-Y-S E-D

PEP	197A		SP TPC-OUTDR BOUND		3CR			
			THERE WILL BE 2 WEEKEND TRIPS BY ARRANGEMENT.					
	1F	300078	MTUWTH 9.30-11.00			NOPE	153	CARUSO,V
PEP	401		APPL BEHAVIOR ANALYS		3CR			
	1F	300351	MTUW 19.00-21.30			NOPE	153	RIFE,F
PEP	597B		SP TPC-CUR WKSHP/PE		3CR			
	1S	300634	MTUWTHF 9.30-11.00			NOPE	153	LEWIS,G.

P-H-I-L-O-S-O-P-H-Y

PHIL	100		INTRO TO PHIL	C	3CR			
	1F	300917	MTUW 19.00-21.30			HERT	102	ROBINSON
PHIL	110		INTRO TO LOGIC	E	3CR			
	1F	301199	MTUWTHF 7.45-9.15			HERT	206	GETTIER

P-H-Y-S-I-C-S

PHYSIC	141		PHYS-LIFE SCI MAJ I LAB FEE $3.25	E	4CR			
LEC	1F	301472	MTUWTHF 9.30-11.00			HAS	134	
LAB	1F	301527	M 1.30-4.30			HAS	212	
	2F	301555	TU 1.30-4.30			HAS	212	
	3F	301583	W 1.30-4.30			HAS	212	
PHYSIC	142		PHYS-LIFE SCI MAJ II LAB FEE $3.25	E	4CR			
LEC	1S	301865	MTUWTHF 9.30-11.30			HAS	126	
LAB	1S	301911	M 1.30-4.30			HAS	212	
LAB	2S	301949	TU 1.30-4.30			HAS	212	
LAB	3S	301977	W 1.30-4.30			HAS	212	

P-L-A-N-T & S-O-I-L S-C-I-E-N-C-E-S

PLSOIL	110		PLANT PROPAGATION LAB FEE $10		3CR			
			CLASS WILL MEET 6/19/78-7/11/78.					
	1X	302254	MTUWTHF 8.30-11.30			FREN	209	
PLSOIL	120		ORG FARM & GARDENG LAB FEE $10	E	3CR			
			CLASS WILL MEET 5/31/78-6/16/78.					
	1X	302537	MTUWTHF 8.30-11.30			BOWD	209	
PLSOIL	597A		SP TPC-PL/SL/WA REL		3CR			
			CLASS WILL MEET 5/31/78-6/16/78.					
	1X	302810	MTUWTHF 1.30-4.30			FREN	209	
								~~HILLEL~~,D
								Veneman

P-O-L-I-T-I-C-A-L S-C-I-E-N-C-E

POLSCI	101		AMERICAN-POLITICS	D	3CR			
	1F	303092	MTUW 19.00-21.30			HERT	118	RUSSO,P
	2S	303125	MTUWTHF 7.45-9.15			HERT	210	BAKER,D
POLSCI	121		WORLD POLITICS	D	3CR			
	1S	303403	MTUW 11.15-12.45			HERT	217	
			THF 11.15-12.45			HERT	217	
								FEIT,E
POLSCI	141		PRIB-CONTEMP POLITCS	D	3CR			
	1F	303685	MTUWTHF 9.30-11.00			GRES	308	KLINE,H
POLSCI	320		PUB ADMINISTRATION	D	3CR			
	1F	303969	MTUW 11.15-12.45			GRES	308	
			THF 11.15-12.45			GRES	308	
								EAGAN,P
POLSCI	325		POL THRY & PUB POLCY	D	3CR			
	1S	304245	MTUW 11.15-12.45			HERT	224	
			THF 11.15-12.45			HERT	224	
								EAGAN,P

P-O-R-T-U-G-U-E-S-E

PORT	126		INTENSIVE ELEM PORT		6CR			
	1F	304529	MTUWTHF 7.45-11.00			HERT	202	

P-S-Y-C-H-O-L-O-G-Y

PSYCH	100A		ELEMENTARY PSYCH	D	3CR			
	1F	304802	MTUW 19.00-21.30			TOBN	204	
PSYCH	150		PSYCH SOCIOL SCI	D	3CR			
	1S	305094	MTUWTHF 7.45-9.15			TOBN	204	
PSYCH	205A		EDUCATIONAL PSYCH	D	3CR			
	1F	305367	MTUWTHF 9.30-11.00			TOBN	204	
PSYCH	240		STATISTICS IN PSYCH		3CR			
	1S	305640	MTUWTHF 9.30-11.00			TOBN	622	
PSYCH	241		METH INQRY IN PSYCH		3CR			
	1S	305923	MTUW 19.00-21.30			TOBN	204	
PSYCH	280A		ABNORMAL PSYCH	D	3CR			
	1F	306200	MTUWTHF 7.45-9.15			TOBN	204	
PSYCH	280B		ABNORMAL PSYCH	D	3CR			
	1S	306488	MTUW 11.15-12.45			TOBN	204	
			THF 11.45-12.45			TOBN	204	
PSYCH	335		MOTIVATION	D	3CR			
	1S	306761	MTUWTHF 9.30-11.00			TOBN	204	
PSYCH	355A		ADOLESCENT PSYCH	D	3CR			
	1F	307043	MTUWTHF 7.45-9.15			TOBN	307	
PSYCH	360		SOCIAL PSYCHOLOGY	D	3CR			
	1S	307321	MTUWTHF 9.30-11.00			TOBN	307	
PSYCH	370		PERSONALITY	D	3CR			
	1F	307604	MTUW 11.15-12.45			TOBN	307	
			THF 11.15-12.45			TOBN	307	

DEPT	COURSE	SEC/SES	SCHEDULE NUMBER	MEETING TIMES	BLDG	ROOM	INSTRUCTOR	CORE	CR
P-U-B-L-I-C H-E-A-L-T-H									
PUB HL	123			DYN PRSNL & COM HLTH					3CR
		1F	307882	MTUWTHF 9.30-11.00	ARND	120			
PUB HL	540			PH STATISTICS					3CR
		1F	308169	MTUWTHF 7.45-9.15	ARND	107			
							HOSMER,D		
R-H-E-T-O-R-I-C									
RHET	100G			PRIN OF LANG AND WR				B	3CR
		1F	308442	MTUWTHF 7.45-9.15	GRES	308			
		2S	308470	MTUW 19.00-21.30	HERT	106			
RHET	110A			LANGUAGE & SPEAKING				B	3CR
		1F	308753	MTUW 19.00-21.30	GRES	308			
		2S	308781	MTUWTHF 7.45-9.15	HERT	205			
B-U-S-I-N-E-S-S A-D-M-I-N-, S-C-H-O-O-L O-F									
S BA	572			ADV FED TAX PROCED					3CR
		1S	309068	MTUW 19.00-21.30	HERT	217			
							WHITEMAN,M		
S BA	583			CPA LAW					3CR
		1F	309341	MTUW 19.00-21.30	HERT	117			
							OCONNELL,J		
S BA	602			INTRO BUS ECON					3CR
		1F	309624	MTUWTHF 7.45-9.15	GRES	309			
							SUFRIN,S		
S BA	608			INTRO ACCTG					3CR
		1F	309907	MTUWTHF 9.30-11.00	GRES	309			
							LENTILHON,R		
S BA	609			BUS FINANCE					3CR
		1F	310162	MTUW 11.15-12.45	GRES	201			
				THF 11.15-12.45	GRES	201			
							SCHNEEWEIS,T		
S BA	730			ACCTG IN MGT					3CR
		1F	310465	MTUWTHF 7.45-9.15	GTWR	111			
							FITZGERALD,J		
S BA	733			ACCTG SYSTEMS					3CR
		1F	310748	MTUWTHF 9.30-11.00	GTWR	111			
							SARDINAS,J		
S BA	740			FIN MGT					3CR
		1F	311025	MTUW 11.15-12.45	GRES	307			
				THF 11.15-12.45	GRES	307			
							FINNERTY,J		
S BA	750			BUS DATA ANALYSIS	LAB FEE $6				3CR
		1F	311308	MTUWTHF 7.45-9.15	GTWR	117			
							KACZKA,E		
S BA	760			MKTG MGT					3CR
		1F	311586	MTUWTHF 9.30-11.00	GTWR	117			
							LEANDER,B		
S BA	789			BUSINESS POLICY					3CR
		1S	311869	MTUWTHF 9.30-11.00	HERT	225			
							MCAULEY,T.		
S-O-C-I-O-L-O-G-Y									
SOCIOL	103			SOCIAL PROBLEMS				D	3CR
		1S	312146	MTUW 19.00-21.30	HERT	118			
							KRUDINER,J		
SOCIOL	106			RACE,SEX & SOC CLS				D	3CR
		1F	312429	MTUW 19.00-21.30	HERT	119			
							MARKSON,S		
SOCIOL	107			CONT AMER SOC				D	3CR
		1S	312707	MTUWTHF 7.45-9.15	HERT	217			
							FORD,M		
SOCIOL	220			WORK AND SOCIETY				D	3CR
		1F	312980	MTUW 11.15-12.45	GTWR	101			
				THF 11.15-12.45	GTWR	101			
							TAUSKY,C		
SOCIOL	222			THE FAMILY				D	3CR
		1S	313267	MTUWTHF 9.30-11.00	GRES	201			
							MURPHY,P		
SOCIOL	241			CRIMINOLOGY				D	
		1S	313540	MTUW 11.15-12.45	HERT	2			
				THF 11.15-12.45	HERT	2			
							SALTZ		
S-P-A-N-I-S-H									
SPAN	110			ELEMENTARY SPANISH I					
		1F	313823	MTUWTHF 7.45-9.15	HERT	2			
SPAN	120			ELEMENTARY SPANISHII					
		1S	314100	MTUWTHF 7.45-9.15	HERT	2			
SPAN	126			ELEMENTARY-INTENSIVE					
		1F	314388	MTUWTHF 7.45-11.00	HERT	2			
SPAN	146			INTERMED INTENSIVE					
		1S	314661	MTUWTHF 7.45-11.00	HERT	2			
SPAN	574			HIST THEORY HISP BIL					
		1S	314944	MTUWTHF 9.30-11.00	HERT	2			
							ZAMORA		
S-P-O-R-T S-T-U-D-I-E-S									
SPORST	769			INTRNSHP IN SPT ADM	LAB FEE $30				1
				CLASS WILL MEET 6/1/78-8/31/78.					
		1X	315221	BY ARRGT			LEWIS, MULLIN		
S-T-A-T-I-S-T-I-C-S									
STATIS	121			ELEM STATISTICS				E	3
				CLASS WILL MEET 5/31/78-8/1/78.					
		1X	315504	MTUWTH 9.30-11.00	GTWR	22			
STATIS	140			STAT FOR BUS				E	3
		1F	315782	MTUWTHF 7.45-9.15	GTWR	11			
		2S	315815	MTUWTHF 9.30-11.00	HERT	20			
T-H-E-A-T-R-E									
THEATR	100			INTRO TO THEATR				C	3
		1F	316097	MTUW 11.15-12.45	GTWR	10			
				THF 11.15-12.45	GTWR	10			
		2S	316120	MTUW 11.15-12.45	GTWR	10			
				THF 11.15-12.45	GTWR	10			
THEATR	490A			TECH ORAL PERFORMANC					3
		1S	316403	MTUWTHF 9.30-11.00	GTWR	11			
							ABRAMSON,D		
W-O-M-E-N-'-S S-T-U-D-I-E-S									
WOST	190A			FEM WRTNG WKSH					3
		1F	316681	MTUWTHF 9.30-11.00	HERT	20			
WOST	290A			WM CROSS CULT PERSPK					3
		1S	316964	MTUWTHF 9.30-11.00	GRES	30			
Z-O-O-L-O-G-Y									
ZOOL	101			INTRO ZOOLOGY	LAB FEE $10			E	3
LEC		1F	317241	MTUW 11.15-12.45	MOR4	34			
				THF 11.15-12.45	MOR4	34			
							OCONNER,J		
LAB		1F	317291	MTU 1.30-4.30	MOR	33			
ZOOL	235			INTRO PHYSIOLOGY				E	3
		1F	317574	MTUWTHF 9.30-11.00	MOR4	34			
							SNEDECOR,.		
ZOOL	250			BIOL OF BEHAVIOR				E	3
		1S	317857	MTUW 11.15-12.45	MOR4	37			
				THF 11.15-12.45	MOR4	372			
							GOLDSTEIN,J		
ZOOL	521			COMPAR VERT ANATOMY					3
LEC		1S	318134	MTUW 11.15-12.45	MOR4	34			
				THF 11.15-12.45	MOR4	34			
							WALL,W		
LAB		1S	318184	MW 1.30-4.30	MOR	34			

Univerity of Massachusetts Amherst Campus

Randolph W. Bromery, Chancellor
Jeremiah M. Allen, Acting Vice Chancellor for Academic Affairs and Provost
James L. McBee, Vice Chancellor for Administration and Finance
Robert L. Woodbury, Acting Vice Chancellor for Student Affairs

Academic Deans

David C. Bischoff	Dean of the School of Physical Education
Eugene B. Piedmont	Acting Dean of the Graduate School
William A. Darity	Dean of the School of Health Sciences
Mario Fantini	Dean of the School of Education
T. O. Wilkinson	Acting Dean of the Faculty of Social and Behavioral Sciences
Jack Wolf	Acting Dean of the School of Business Administration
Russel C. Jones	Dean of the School of Engineering
Seymour Shapiro	Dean of the Faculty of Natural Sciences and Math
Ross Whaley	Dean of the College of Food and Natural Resources
Richard Noland	Acting Dean of the Faculty of Humanities and Fine Arts

Summer Session Officers

Alan B. Ashton	Director of Summer Session
Irene S. Nagler	Summer Session Registrar

UNIVERSITY OFFICES ...an annotated directory

Admissions and Records Offices

Dean of Admissions, Records
Dr. William D. Tunis, 255 Whitmore (545-0222)

The Admissions Office is responsible for all administrative procedures concerning admission of undergraduates to the University's Amherst campus. Activities include processing, review and admission determinations for approximately 12,000 applications for full-time enrollment as well as processing and decision-making for a variety of other programs including Second Bachelor's Degree and Special Student status. The staff also conducts high school visits throughout the state to establish liaison with counselors, prospective applicants and parents, and coordinates on a continuing basis with faculty and staff in setting admission standards and policies.

Transfer Affairs

Director: Dr. Eli W. Sherman
208 Whitmore (545-0860)

The Office of Transfer Affairs serves as a general resource center for all matters pertaining to the transfer process. One of the major functions of the office is to work with academic departments on campus and at the community colleges in a cooperative effort to provide a smooth academic transition for the transfer student from one institution to the other.

Registrar

Registrar: Ralph D. Jones
213 Whitmore (545-0555)

The Registrar's Office is responsible for enrollment and registration of undergraduates, administrative procedures relating to course loads (adding and dropping courses), courses of study, withdrawals, producing grade reports, transcripts, records of matriculation, maintaining permanent academic record cards and related activities.

Financial Aid Services

Director of Student Services
W. Daniel Fitzpatrick, 243 Whitmore (545-0801)

Financial Aid Services assists students with financial counseling and also aids in finding suitable employment, awards, loans, grants, scholarships, and assigning part-time work. The office is responsible for administering all federal, state and private financial aid for the Amherst campus as well as coordinating all student employment. The Financial Aid Office also has information concerning area employment, scholarships, loans, etc. Students are advised to apply early for all financial aid.

Students in Continuing Education must currently be enrolled in a degree-granting program and carrying six or more credit hours per semester for consideration for financial aid.

Campus Center

Director: William Harris
820 Campus Center (545-0585)

The Campus Center Director administers and coordinates the policies of the Campus Center Complex (which includes the Student Union Building and the new Campus Center). His duties include close coordination with the Campus Center Governing Board, serving on various committees concerned with student services, and supervision of the Campus Center Complex staff and services. Major areas of responsibility include the University Store, Campus Center Food Services, Lobby and Games Area, Campus Center Overnight Accommodations, Print Shop, and Conference Services.

Campus Assistance Center

Campus Center Concourse (545-0012, 545-0014)

The Assistance Center acts as a reference desk for any information needed by students.

CAOS

Hasbrouck Building (545-0057, 545-0060)

Counseling Assistance for Older Students (CAOS) is a counseling and information center designed specifically to meet the needs of the older student. CAOS provides academic counseling as well as personal and career guidance.

Child Care Office

221 Berkshire House (545-0333)

The Child Care Office provides a referral service on day care available in the five college area. It keeps files of private, cooperatively sponsored, clinically-oriented, or university day care facilities. The office is also involved in developing new child care programs.

Community Development Center

Berkshire House (545-0333)

The psychological and career counseling services of the Community Development Center offer a variety of on-going programs in addition to scheduled workshops. Individual and group counseling are offered by appointment and provide assistance with personal, educational, vocational and career concerns. The center operates a walk-in intake system and in most cases the student can talk with a counselor at that time. The center maintains an up-to-date career resource library containing information about a wide variety of careers, vocations and information about the world of work. All national testing programs are administered through CDC and information and applications for GRE, LSAT, MCAT, NTE, CLEP, etc., are available.

Throughout the course of the year CDC staff will conduct special counseling sessions in areas such as examination anxiety, study skills, and career exploration. Special programs of this nature are announced in advance through campus media.

In addition to the above activities, the Community Development Center also has responsibility for all New Student Programs.

Division of Continuing Education

Acting Director: Kevin F. Grennan
Hasbrouck Building (545-3420)

The Division provides educational opportunities to part-time, non-traditional students on a year 'round basis. During the fall and spring semesters, the Evening College schedules University courses Monday through Thursday nights, and on Saturdays; Credit-Free Workshops provide personal growth and enrichment opportunities throughout the year. In addition, certificate and licensing programs are offered for students requiring vocational training or professional upgrading. The Division also provides specialized advising for non-traditional students.

Direct Information Service

Jones Library, Amherst Center (256-0121, 1-800-282-7779)

Direct Information Service is an information and referral program with a listing of over 400 social service agencies in Hampshire and Franklin Counties. Service is free of charge.

Everywoman's Center

Goodell Hall (545-0883)

The EWC offers academic, career, personal, and rape counseling and support group services. The center also offers assistance with discrimination and affirmative action problems. Also provided are information on child care, jobs, housing, legal and health resources, and women's issues. The EWC issues a monthly newsletter.

Foreign Student Office

239 Whitmore (545-2843)

The Foreign Student Office provides academic and personal support for students, faculty and staff.

Health Services

Director: Barry Averill
Health Center (549-2671)

The University Health Services is organized to provide a comprehensive program of health care services for the University community. Emphasis is on individual health maintenance which is encouraged through education, prevention, and the availability of high quality personal health care services and environmental surveillance.

Medical Care Services

Medical Director: Dr. Thomas McBride
Nursing Director: Diane Smith
Patient Services Director: Shelley Arcus-Ting

Students and their dependents may seek unlimited consultations with the physicians, nurse practitioners, and specialists in the out-patient unit of the Health Services. Students may consult with a staff member on a walk-in basis or by phoning for an appointment (549-2600). Specialty services such as x-ray, laboratory, medical records, pharmacy and physical therapy are located in the Health Center. Vision examinations are available on a co-payment basis. Emergency treatment is available 24 hours a day. The Health Center is also a hospital providing bed care for students with more serious illnesses.

Medical records are held in strict confidence and will not be released to anyone without the patient's written permission.

Mental Health Services (545-2337)

Director: Dr. Leighton Whitaker

Daily living can sometimes become a perplexing experience, and you may find it helpful to talk out your feelings, sort out confusion and develop new perspectives with a member of the Mental Health staff. Social workers, clinical psychologists, and psychiatrists are available for short-term, one-to-one consultations. They also provide group therapy, when appropriate, as well as couple and family therapy, very brief in-patient psychiatric care and 24-hour crisis-intervention. The main office is located in 127 Hills North.

Health Education Services
Director: Jane Zapka (549-2671)

The Health Education staff provides a broad range of programs and activities to help promote responsible attitudes and behavior with respect to personal and community health. If your group is interested in a program about human sexuality, nutrition, alcohol, women's health, first aid, or other health-related topics, contact this office. Patient education activities offered at the Health Center include wart-self-help, contraception educational sessions, and pre-natal education programs. Smoking cessation, weight control, physical fitness and parenting classes are offered.

Dental Health Services (545-2400, 545-2401)
Director: Henry Lubin, D.D.S.

The Dental staff provides emergency dental care, initial oral examinations (except x-rays) and dental health education services as part of the health fee. Cleanings and restorative care are provided on a fee-for-service basis, when time permits. Removal of impacted teeth will be offered through the Health Center or by referral to a participating surgeon on a co-payment basis.

Environmental Health and Safety Services (545-2682)
Director: Donald Robinson

The staff works with students, staff and faculty to promote a safe and healthful environment at the University. They are responsible for such activities as Handicapped Student Affairs, radioactive material control, injury prevention, fire safety and public health concerns related to food service and kitchenette sanitation.

Library

Main Library Information (545-0150)
Morrill Library (545-2674)
Music Library (545-2870)
Graduate Research Center Library (545-1370)

The library system consists of the Main Library, located in the center of the campus, and three branches: Biological Sciences in Morrill Science Center; the Music Library in the Fine Arts Center; and Physical Sciences in the Graduate Research Center. A current ID card serves as a library card.

Legal Services for Students

922 Campus Center (545-1995)

Legal Services offers free legal counseling and/or representation in courts within 30 miles of Amherst. All students paying the Student Activities Tax Fund Fee are eligible for the service. Legal Services does not provide assistance for any profit-oriented matter such as real estate, wills, etc. Please call to make an appointment.

Off-Campus Housing Office

Munson Hall Basement (545-0865, 545-0145)

The Housing Office provides a referral service which maintains lists of apartment complexes, apartments (furnished and unfurnished), and houses available for renting. Also provided is advice on housing and leasing.

University of Massachusetts Student Federal Credit Union

Colonial Lounge
Student Union Building (545-2800)

The Credit Union is volunteer student-run, and owned by its members. It offers savings accounts, check cashing, low interest loans, and is a purchasing agent for food stamps. Membership is open to all students, including visiting summer students as long as they have a valid summer session I.D. Membership is good for life. All accounts are insured in full by the Federal government.

Ombudsman

821 Campus Center (545-0867)

The Ombudsman's Office is the place to go when all else fails. The Office helps cut through bureaucratic red tape in an effort to solve unsolvable problems. This service is open to all University students, faculty and staff.

Department of Public Safety

Director: Saul Chafin
Dickinson Hall (545-3111 emergency, 545-2121 business)

The Department of Public Safety contains the University Police, the Security Guard force and the University of Massachusetts Police Training Institute. The Department works in conjunction with federal, state, and local law enforcement agencies to provide high quality law enforcement.

The Department maintains crime prevention programs and sensitive crime units.

In accordance with the provisions of the Code of Student Conduct, student ID cards or other means of identification must be shown upon request to any properly identified member of the Department of Public Safety, to enable him or her to perform assigned duties.

The Department of Public Safety is located behind Thompson Tower and is staffed 24 hours a day.

New Africa House

Central Residence Area (545-0794)

The New Africa House provides support for third world students and a place for them to meet. New Africa House sponsors a black repertory theater, a dance theater, a choral group called Voices of New Africa, and *Drum,* a literary magazine.

Veterans Affairs Office

236 Whitmore (545-1346)

The Veterans Affairs Office facilitates the flow of paperwork required to obtain educational benefits for veterans, war orphans, and dependents of veterans.

Applicants are required to present proof of registration at the time of enrollment in order to receive benefits. Deferments will be available for those who need them. If already receiving benefits, applicants must re-enroll for summer sessions.

The Veterans Office provides personal, academic and financial aid counseling; part-time employment; short-term loans; and programs for disabled veterans. In addition, the office also provides information for state and federal benefits.

Map Key

CA=Central Residence Area
NA=Northeast Residence Area
OH=Orchard Hill Residence Area
SW=Southwest Residence Area

J-AD	J. Adams (SW)	C7
Q-AD	J.Q. Adams (SW)	C7
AEB	Agricultural Engineering Building	B4
ARND	Arnold	C3
ASTR	Astronomy	B3
BAKR	Baker (CA)	E4
BART	Bartlett	C5
BERK	Berkshire	C6
BERK DC	Berkshire Dining Commons	C7
BOWD	Bowditch	B3
BOWD LD	Bowditch Lodge	B7
BRET	Brett (CA)	D4
BRKS	Brooks (CA)	E4
BRWN	Brown	D2
BFLD	Butterfield (CA)	E5
CC	Campus Center	C4
CNCE	Cance (SW)	C7
CASH	Cashin	D1
CHAD	Chadbourne (CA)	E4
CH HSE	Chancellor's House	E4
CHEN	Chenoweth Lab	B3
CLRK	Clark	D4
CONS BLD	Conservation Bldg.	D4
COOL	Coolidge (SW)	C6
COTG-A	Cottage A	D3
COTG-B	Cottage B	D3
COTG-C	Cottage C	D3
CRAB	Crabtree (NA)	C3
CRAM	Crampton (SW)	C7
DHSE	Dickinson (OH)	E3
DKSN	Dickinson (Security)	B5
DRA	Draper	C3
DRAX	Draper Annex (Arts Extension Service)	C3
DURF	Durfee Conservatory	D4
DWGT	Dwight (NA)	C2
EDUC	Education Bldg.	C1
EMSN	Emerson	B7
ENGE	Engineering East	C3
ELAB	Engineering Lab	B3
EWC	Everywoman's Center	C5
FAC CL	Faculty Club	D4
FAR LD	Farley Lodge	B7
FERN	Fernald	D5
EUGE	Field (OH)	E3
FAC	Fine Arts Center	C5
FISH	Fisher Lab	E4
FLIN	Flint Lab1	B4
FRAN DC	Franklin Dining Commons (CA)	D4
FREN	French	D4
GOES	Goessmann Lab	C3
GDEL	Goodell	C5
GORM	Gormon (CA)	E5
GRES	Graduate Research Center	C3
GRAY	Grayson (OH)	E3
GNGH	Greenough (CA)	E4
GRIN	Grinnell Arena	B4
GUN	Gunness	B3
HAIG	Haigis Mall	C5
HAML	Hamlin (NA)	C2
HAMP DC	Hampshire Dining Commons (SW)	B6
HAS	Hasbrouck Bldg. (Continuing Education)	C4
HTCH	Hatch Lab	B3
INFI	Health Center (Infirmary)	D4
HERT	Herter	C5
HICK	Hicks	C5
HILLS	Hills	E5
HOLD	Holdsworth	B3
JAMS	James (SW)	B6
JOHN	Johnson (NA)	D2
KENN	Kennedy (SW)	C6
KNOW	Knowlton (NA)	C3
LEAC	Leach (NA)	C2
LEWS	Lewis (NA)	D2
UM LIB	Library	C4
LCLN	Lincoln Apartments	D6
LYON	Lyon (NA)	D3
MACH	Machmer	C4
MCK	Mackimmie	C7
MAHAR	Mahar Auditorium	D5
MKS MW	Mark's Meadow Elementary School	C1
MAR	Marshall	D3
MARX	Marshall Annex	D3
MRST	Marston	B3
MCNA	McNamara	D1
MEL	Melville (SW)	B6
MEM	Memorial Hall	C5
MDSX	Middlesex	C6
MOB	Mobile Music Classrooms	B4
MONT	Montague	C1
MOOR	Moore (SW)	B7
MOR	Morrill Science Center	D4
MN	Munson	C5
MNX	Munson Annex	C5
AFCA	New Africa House	E4
NEW	Newman Center	D5
NOPE	North Physical Education Bldg.	C2
OBS	Observatory	D3
CHAP	Old Chapel	C5
PAIG	Paige Lab	B3
PARK	Parking Garage	C4
PAT	Patterson (SW)	C7
PIER	Pierpont (SW)	C7
PWR	Power Plant	B4
PRIN	Prince (SW)	C6
PHB	Public Health Bldg.	D4
SBA	School of Business Administration	D5
SK	Skinner	D4
SOCL	South College	C4
STK	Stockbridge	B3
STUN	Student Union	C4
TBKX	Textbook Annex	B4
THAT	Thatcher (NA)	D3
THOM	Thompson	B4
THOR	Thoreau (SW)	B6
TOBN	Tobin	C5
UNIV	University Apartments	E6
VAN	Van Meter (CA)	E4
WASH	Washington (SW)	C7
NOAH	Webster (OH)	E3
WEX	West Experiment Station	C3
WHLR	Wheeler (CA)	E4
WHIT	Whitmore Administration Bldg.	C6
WILD	Wilder	D4
WYKI	Wysocki House	C1

A
B
C
D
E
To Wysocki House
Marks Meadow Elementary School
Education
Montague
McNamara
Brown
Eastman Lane
North Physical Education
Thatcher Way
NORTHEAST RESIDENCE AREA
Governor's Drive
Engineering Lab
Graduate Research Center
Observatory
Engineering East
West Experiment Station
East Experiment Station
Orchard Hill Drive
ORCHARD HILL RESIDENTIAL COLLEGE
Holdsworth
Hatch Lab
Draper Annex (Arts Extension Service)
Stockbridge
Hasbrouck Building (Continuing Education)
Cherrywoth
Campus Center
Construction Building
Parking Garage
Maintenance
Physical Plant
Central Stores
(Textbook Annex)
Power Plant
Student Union
Photo Center
Thompson
University Library
Commons Pond
Grinnell Arena
Faculty Club
CENTRAL RESIDENCE AREA
Dickinson (Security)
Old Chapel
(Everywoman's Center)
Memorial Hall
Commonwealth Avenue
Burnett
Business Administration
Hasbrouck
Herter
Hasbrouck Pond
(Parking Office)
Munson
Whitmore Administration
Boyden
Massachusetts Avenue
Berkshire
Hampshire
Kennedy
Prince
North Hadley Road
Dining Commons
Coolidge
Crampton
SOUTHWEST RESIDENTIAL COLLEGE
Mackimmie
Hampden
Dining Commons
North Pleasant Street
Fearing Street
Stadium Drive
J.Q. Adams
Berkshire
Dining Commons
Patterson
J. Adams
Moore
Washington
Bowditch Lodge
Pierpont
Farley Lodge

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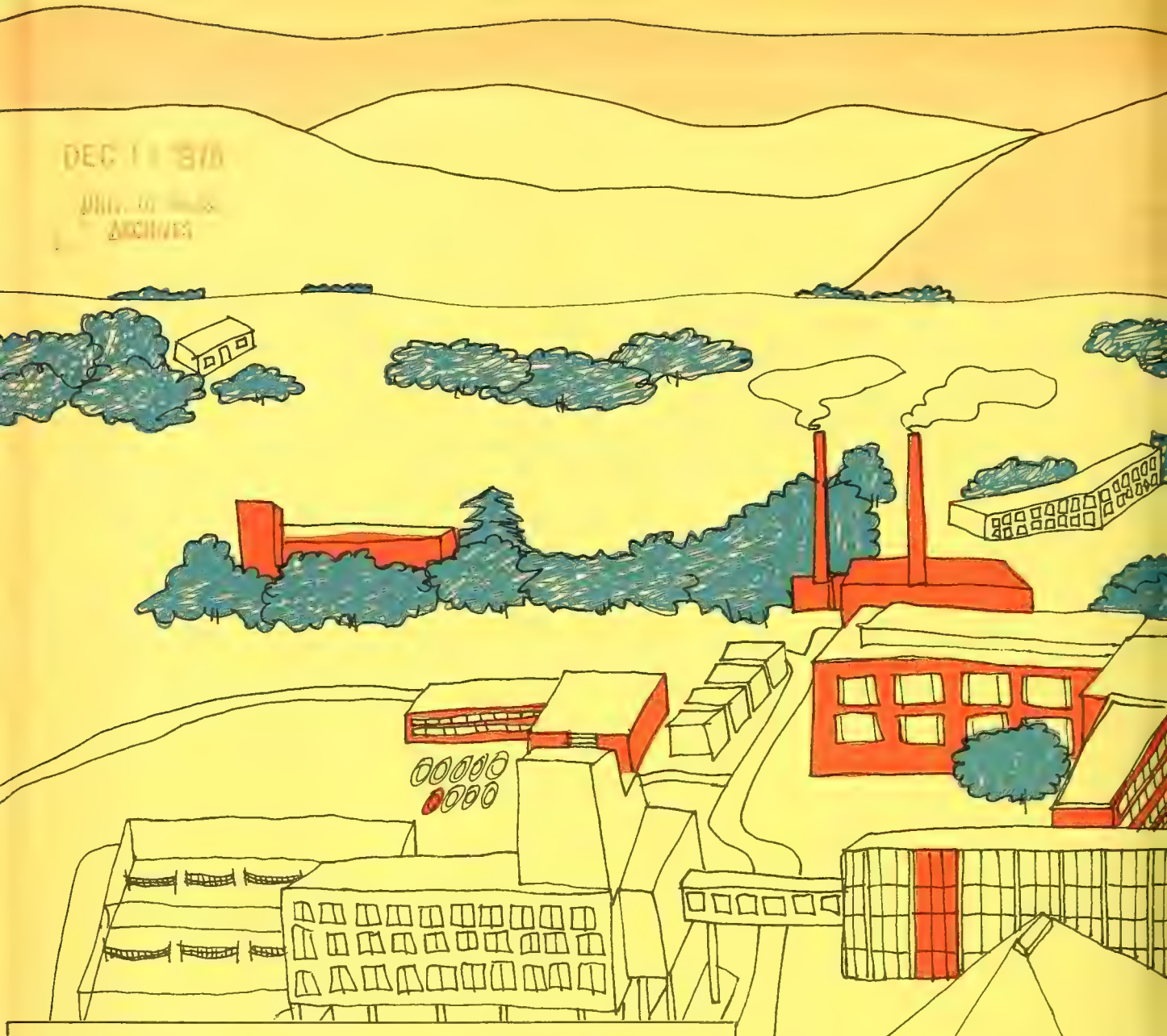

Summer Session
University of Massachusetts
P.O. Box 835
Amherst, MA 01002

Non-Profit Organization
BULK RATE
U.S. POSTAGE PAID
Amherst, MA 01002
Permit Number 2

UNIVERSITY OF MASSACHUSETTS/AMHERST

General Information

The Division of Continuing Education, University of Massachusetts at Amherst offers both credit and credit-free learning opportunities to adults who are interested in continuing their education.

The Division provides academic advising and information referral to its students, supplementing the informal support and information sources available to full-time students on the university campus. Continuing Education advisors help students design transdisciplinary degree programs, investigate specialized education resources both on and off campus, and arrange for credit by examination or for prior experience when appropriate.

The Division of Continuing Education recognizes the need of the adult learner to integrate his or her education with professional and personal activities. Every effort is made to meet the needs of non-traditional students by providing programs at convenient hours, taught by instructors who place a premium on both effective teaching and enthusiastic students.

The Credit-Free Workshop Program is a series of workshops offered specifically for persons interested in expanding their skills, furthering their careers, and improving their community life. The workshops are not for academic credit, but bring to a variety of potential non-traditional students the chance to enrich themselves educationally in areas of interest appropriate to their lives.

Admissions

The Division of Continuing Education has an open admissions policy with regard to the Credit Free Workshops it offers. Interested persons may enroll for as many workshops as they wish without concern for their educational background.

Sixty and Over Policy

Persons aged 60 and over may register, free of charge, for any Credit-Free Workshop, provided that the workshop has met its minimum enrollment. Registrations will be accepted and applicants will be notified when the minimum is reached.

Mail Registration

To register by mail complete the workshop registration form on page 7 of this publication, and mail by May 22 with full payment to:

Credit-Free Workshops, AE78-7
Division of Continuing Education
P.O. Box 835
Amherst, MA 01002

Make checks payable to: **Continuing Education, AE78-7.** Mail registrations must be postmarked by May 22 at the latest.

Workshop Confirmations

When registration for a workshop meets the minimum enrollment, registrants will be notified by mail with a class card which includes notice of meeting place. Most workshops will be confirmed during the week prior to the beginning of the workshop. Please do not call the office for earlier confirmation; please wait until the week before the workshop is scheduled to begin.

In-Person Registration

Walk-in registrations will be accepted at any time on a space-available basis. To register, come to the Continuing Education Records Office located in 113 Hasbrouck.

Office hours are:

Monday-Friday	8:30 a.m.-5 p.m.
Saturday	10 a.m.-1 p.m. (Closed holiday weekends)

The office will be open until 7 p.m. Monday-Thursday during the period May 30-June 8.

Enrollment in all workshops is limited to a number that is manageable and acceptable to each instructor, therefore early registration is encouraged. When requests for a workshop exceed the maximum number to be enrolled, the Division will attempt to arrange for an additional section. Names of registrants will be placed on a waiting list in the order in which they are received. In-person registrants will also receive a confirmation card (see above).

Fees

Credit-Free Workshops are self-funding and, in general, fees have been computed on the basis of the number of contact hours which a workshop meets. In order to make each workshop self-supporting, a minimum number of enrollments is usually necessary. Fees are included in the workshop descriptions.

Optional Fees and ID Cards

Students who register for a Credit-Free Workshop of at least six weeks in duration have the option of paying the UMass Summer Services Fee of $7 per week (Minimum $42 for a six week workshop). Payment entitles the student to services and programs provided by the University Health Center, Campus Center, and Summer Activities Office. Only those students who pay the Summer Services Fee are eligible for an ID card.

Students who elect this option should:

1. Request a student number and obtain a copy of their Credit-Free Workshop registration form in the Continuing Education Records Office, Hasbrouck 113.
2. Pay the Summer Services Fee in the Continuing Education Business Office, Hasbrouck 110.
3. Obtain a temporary summer identification card at the ID Office, Crabtree House, beginning June 2, Monday-Friday, 9 a.m.-4 p.m. Students must present a copy of their processed registration form as proof of registration, as well as some form of identification. ID cards may be picked up at the ID Office 24 hours after having the picture taken. There is a $1 charge for picture ID cards.

Credit-Free Workshop students who already have a picture ID card may obtain a Summer 1978 validation sticker if they follow the procedures above.

Payment

Full payment of workshop fees must be made at the time of registration. Payment by VISA (BankAmericard), Mastercharge, or American Express is allowed. To make a credit card payment for a mail registration please complete the credit card payment section on the mail registration form. All credit card identifying numbers (including bank number for Mastercharge cards), card expiration date, and card-holder's signature must be included.

Refund and Withdrawal

Full refund will be made by mail if a workshop is cancelled due to underenrollment.

If a student wishes to withdraw from a workshop, the Records Office must be notified in writing by mail, or in person during regular office hours. Notifying the instructor or ceasing to attend class does not constitute official withdrawal. There will be an 80% refund for official withdrawal *after* the first workshop meeting and before the second meeting. There will be a 60% refund after the second workshop meeting and before the third. After the third workshop meeting, there will be no refund.

Following is the refund schedule:

After	
First meeting	80%
Second meeting	60%
Third meeting	NO REFUND

Exceptions: There are *no refunds* for workshops with schedules covering less than three weeks unless withdrawal is effected prior to the beginning of the workshop. In cases of withdrawal prior to the beginning of the workshop, a full refund will be processed once the Records Office is notified in writing or person.

Other Important Information

Cancellations and Changes

It sometimes becomes necessary for the Division to cancel, postpone, or combine workshops or to change instructors. Changes are usually kept to a minimum.

Workshop Locations

Workshops will take place in Amherst unless otherwise noted in the workshop description. Exact locations will be announced by mail once students have registered.

Reading Material

Information about reading material may be obtained from the instructor on the first night of class. Required books may be purchased in Room 104 Hasbrouck.

Supplies/Expenses

Some workshops require supplies which are to be paid for by each participant if he or she chooses to have them. The estimated cost of these supplies is listed at the end of the workshop description. Since expense money is estimated and optional, it is not included in the workshop fees and students should not prepay these expenses.

Parking

Vehicles presently registered in the Campus Parking System may park in their assigned lot or any edge lot.

Vehicles that are not registered must be registered with the Campus Parking Office, Room 1, Munson Hall, 545-0065. The parking office hours are 8 a.m.-4 p.m. Monday-Friday. The registration fee is $5, and enables the vehicle to use all edge lots: 21, 22, 23, 24, 25, 26, 31, 32, 34, 44, 46, 47, 48, 49, 50. If an individual wants to register a vehicle for a core lot, the cost is a $5 registration fee plus the monthly convenience fee of $3 for a core lot and $4.20 for lot 71. Hourly parking is available in the Campus Center Garage.

Bus Transportation

The Student Senate Transit Service will provide regularly scheduled free bus transportation during the Summer Session. It is anticipated that buses will serve students commuting from Belchertown, South Amherst, North Amherst, Sunderland, South Deerfield and points between, on all weekdays when classes are in session. Sufficient buses will be scheduled to transport students to the campus in the morning, to outlying points, return at mid-day and home at the end of the day. For bus service information, call 545-0056.

The Continuing Education Unit (CEU)

The CEU is designed for in-service professionals and non-professionals who want to maintain a record of their participation in approved non-credit continuing education programs. It is not equivalent to academic credit, but it is applicable to appropriate learning experiences of adults at all levels from post-secondary to post-doctorate; for all classes of adult learners, whether vocational, technical, professional, managerial, or adults bent on personal improvement; and in all formats of teaching and learning. CEUs are generally transferable from one institution to another.

The Division of Continuing Education, University of Massachusetts at Amherst, will award a specified number of Continuing Education Units to each individual who successfully completes a workshop approved for the awarding of CEUs. Each CEU represents ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. The number of CEUs per workshop is determined by the total number of contact hours. Awarding only some part of the CEUs offered in a workshop is not an option, and to receive CEUs, each workshop participant must attend the total number of contact hours required.

Workshop Descriptions

Arts & Crafts

ART IN BOSTON — Leslie Kramer J001

Sec. 1 Saturday, 9 a.m.-6 p.m., June 3, $33
Sec. 2 Saturday, 9 a.m.-6 p.m., July 8, $33

Bus trip to acquaint people with the current Boston art scene. Trip includes the Institute of Contemporary Art and a variety of art galleries in the Back Bay area to familiarize people with the range of area artists and contemporary art styles. Prints and print makers emphasized. (Expenses: Lunch in Boston, if purchased.)

CALLIGRAPHIC LETTER FORMS — James Sadler J002

Sec. 1 Monday, 7:30-9:30 p.m., 8 weeks, begins June 5, $37.

After exploring the stylistic changes through which calligraphy has passed since early Rome, each student chooses an alphabet of particular interest to study in detail. Assignments designed to increase awareness of individual alphabets. Workshop concludes with individual projects. (Expenses: $5.)

CREATIVE GLASSBLOWING — Larry Williams and Joe Walas, Jr. J003

Sec. 1 Wednesday, 6:30-9:30 p.m., 4 weeks, begins June 7, $29

Introduction to basic novelty and ornamental glassblowing using a hand torch. Demonstrations are given and students create simple novelty items. (Expenses $5-$10.)

DESIGN AND CREATION OF SILVER JEWELRY — Marion Morningstar Abrams J004

Sec. 1 Wednesday, 7-10 p.m., 8 weeks, begins June 7, $56.

All the techniques necessary to fabricate fine pieces of sterling silver jewelry. Design, filing, soldering, polishing, setting stones, and repairs are covered. Tools and equipment necessary to make rings, bracelets, earrings, pins, pendants, etc., are available. Price of individual projects varies widely (average ring: $2), but students should plan on spending $5 to $15 for silver. Copper (less expensive) and gold may also be used.

EVALUATING DIAMONDS AND OTHER GEMSTONES — Walter Johnson J005

Sec. 1 Wednesday, 7-10 p.m., 6 weeks, begins June 7, $42

The history, cutting, marketing, and evaluation of diamonds. Identification of diamonds and diamond substitutes. Discussions of other gemstones, including gemstones in jewelry, depending on students' requests.

GRAVESTONE RUBBING — Melvin Williams J006

Sec. 1 Saturday, July 1 9 a.m.-4 p.m., $19 *rain date is July 8*

Morning session; slide illustrated discussion on artistic and historic attractions in early New England graveyards. Afternoon session; guided practice in making gravestone rubbings, using both oil and wax techniques. Please bring a bag lunch. Workshop held in Deerfield. (Expenses: $5.)

LACEMAKING "VADSTENAKNYPPLING" — Margareta Tristan J007

Sec. 1 Wednesday, 6:30-8:30 p.m., 8 weeks, begins June 7, $38.

Vadstena is an old town on the west coast of Sweden, where nuns in the Vadstena Nunnery used to sit and make lace about 100 years ago. Mastering this beautiful art is the subject of this workshop. Work at your own speed and learn 10 different patterns (the first one is very simple); finish with a small tablet on which you mount your lace. (Expenses: $5-$25.)

MACRAME: BASIC — Elaine C. Barker J008

Sec. 1 Monday & Thursday, 7-9 p.m., 5 weeks, begins June 5, $46.

For beginners. Covers basic knots such as square, half hitch, clove hitch, and their variations; Chinese crown, josephine, cavendoli and nautical, etc. Includes basic construction of jewelry, plant hangers, wall hangings and shapes. Students work on items in class and are encouraged and assisted in special interest projects. (Expenses: $10.)

MONOPRINTING — Leslie Kramer J009

Sec. 1 Wednesday, 7-10 p.m., 3 weeks, begins June 7, $24

Monoprinting or monotype is a combination of painting, drawing, and printmaking which produces a unique non-repeatable image. Workshop includes subtractive, additive and transfer printing techniques. Students work in color as well as black and white. A method of printing not requiring a press is demonstrated. No previous art experience required. (Expenses: $10-$15.)

PAINTING — Mona Waterhouse J010

Sec. 1 Thursday, 7-10 p.m., 6 weeks, begins June 8, $41

For beginners and advanced students: painting as an expression of the self is explored. Students pursue their personal style and level of painting. Experimentation is encouraged. Throughout the workshop slide lectures and books are used to increase student's awareness of historical and contemporary art expressions, with emphasis on painting. (Expenses: $5-$10.)

POTTERY — Fredric Englander J011

Sec. 1 Tuesday & Thursday, 7:30-9:30 p.m., 8 weeks, begins June 6, $69

Use of potters wheel, hand-building techniques, and application of glazes to stoneware clay fired to cone 10 in reduction atmosphere. Includes opportunity to fire 8 pots. Additional pots may be fired for a minimal fee. Workshop held in Amherst Center. (Expenses: $5.)

PRINT COLLECTING — Leslie Kramer J012

Sec. 1 Tuesday, 7-9 p.m., 2 weeks, begins June 6, $17.

For those who would like to collect art on a modest budget. Lecture discussions on what to look for when buying an original print. Visit to a local museum or gallery uncovers the range of artwork in this area. Topics include the difference between etching, lithography, and serigraphy; what determines the value of an original print; and care and display. One field trip to be arranged.

STUDIO PAINTING — Linda Forte J013

Sec. 1 Wednesday, 7-10 p.m., 8 weeks, begins June 7, $53.

Basic studio with individualized instruction for any level or style. Analyzes successful painting from traditional to contemporary. For beginners and advanced students. Instructor has elementary knowledge of sign language; deaf students are welcome. (Expenses: $15.)

WOODWORKING: DESIGN AND CONSTRUCTION OF FURNITURE AND CABINETS — Robert Lachmeyer J014

Sec. 1 Monday & Wednesday, 7:30-10 p.m., 8 weeks, begins June 5, $86

The initial sessions cover the basic information and considerations that relate to constructing objects out of wood and the use of available equipment. The remainder of the workshop is for construction of individual projects. Students provide materials for their projects (wood, glue, sandpaper, finishing materials, hardware, etc.). Cost varies according to projects. (Expenses: $10 minimum.)

WOODWORKING HAND TOOLS — Richard Preiss J015

Sec. 1 Monday-Friday, 9 a.m.-12 and 1-4 p.m., 2 weeks, begins June 19, $100

For those who seek competence in woodworking. Students learn to select, maintain, and use basic hand tools properly (i.e. set-up planes, sharpen chisels, set-up and sharpen saws, etc.). Includes in-shop discussions, practical work, and a field trip. Covers the problems involved in bringing rough sawn hardwood stock to milled dimensions using hand tools only. Students must provide the following tools: 9"-16" hand plane, chisels, cross-cut and rip saws, mill files, combination square, and sharpening stone. Instructor will provide information about purchase of tools at the first class. Workshop held in Easthampton. (Expenses: $10-$100.)

Performing Arts Division

Performing Arts Division offers private instruction in voice and guitar; keyboard, orchestral and band instruments; and related study. Students may select a focus in classical, popular or jazz instruction.

On-going registration.

Contact Susan Huetteman, Development Coordinator-PAD, Department of Music and Dance, University of Massachusetts, Amherst, MA 01003, tel. (413) 545-0519.

Communities in Action

Communities in Action is a program designed to meet some of the training needs of community organizations. The following series of workshops is intended for board members, staff and volunteers of citizen councils, and non-profit community organizations of all types. Instructors for each of the workshops are practitioners with both theoretical knowledge and practical experience in the topic area.

Communities in Action and other training workshops can be offered by your organization in your own community. For information, please contact Stan Rosenberg, (413) 545-2040

GRANTWRITING AND NON-PROFIT ACCOUNTING: PROBLEM SOLVING — Rick Feldman and Margot Willett J016

Sec. 1 Wednesday & Thursday, 6:30-9:30 p.m., June 7 & 8, $19.

A conceptual orientation to the basics of grantwriting for organizations, or individuals representing non-profit groups. Analysis and development of budgets and bookkeeping systems included. Open *only* to people with present problems related to fundraising, grantwriting, and budgeting for non-profit organizations. Prerequisite: Current experience with non-profit organizations.

INFORMATION GATHERING TECHNIQUES FOR CITIZEN GROUPS– Duane Dale J017

Sec. 1 Tuesday, 7-10 p m , 3 weeks, begins June 6 $17

Many citizen groups f nd they need to gather information in order to ident fy com mun ty needs, document problems or make decisions about strategy Prepares students to ident fy informat on needs, tap library materials and run commun ty surveys Case examples drawn from the participants

METHODS IN COLLECTIVE MANAGEMENT – David Magnani J018

Sec 1 Monday, 7-10 p m 2 weeks, begins June 5, $10

First session focuses on defin tions, advantages, and disadvantages of manag ng an organization collectively. Topics include: role of salary scales, division of work, internal and external accountability and interpersonal relations. Second session focuses on possible solutions and systems which help deal with problems of collective management such as meeting facilitation, communication, task assignments, personnel selection and creeping informal hierarchy.

TEAMWORK EFFECTIVENESS IN GROUPS – John Beck J019

Sec 1 Saturday, 9 a m -12 and 1-4 p.m , June 10, $18

We all interact with other people constantly; at home, at work, and at play we are in groups. Sooner or later, every group has problems. People get stuck. We have difficulty communicating. People are not getting what they want. Participants work with other people in groups. They observe their roles, other's roles, the dynamics of leadership and decision-making, and the impact of norms on the group's functioning. Participants learn to be more effective in groups.

Dance

BALLET: BEGINNING – Ellen Inkellis J020

Sec. 1 Monday & Wednesday, 6-7:30 p.m., 8 weeks, begins June 12, $53

For the interested person who has had little or no dance experience but lots of enthusiasm. Depending on the level, offers the basics of ballet at a comfortable speed Prepares for additional ballet study. Consistent attendance encouraged

BALLET: INTERMEDIATE – Ellen Inkellis J021

Sec 1 Tuesday & Thursday, 3 4 30 p m , 8 weeks, begins June 13, $53

Basic ballet barre and centre work for students who have had some previous training Consistent attendance encouraged

BALLROOM DANCING I – Carolyn Nims J022

Sec. 1 Thursday, 7:30-8 30 p m., 8 weeks, begins June 8, $21
Sec 2 Thursday, 8:30-9.30 p.m., 8 weeks, begins June 8, $21.

Fundamental steps of ballroom dancing including fox trot, waltz, polka, rumba, tango, cha-cha, hustle, and disco. Class is open to beginners and intermediates who wish to learn or review ballroom dancing on a basic level in preparation for more advanced work.

DANCE EXERCISE – Ellen Inkellis J023

Sec. 1 Monday & Wednesday, 11 a.m.-12:15 p.m., 8 weeks, begins June 12, $45.
Sec. 2 Tuesday & Thursday, 6-7:15 p.m., 8 weeks, begins June 13, $45.

For the individual who seeks an environment less structured than a dance class. Emphasis on corrective exercises and exercises to release tension. Requires enthusiasm and an enjoyment of getting and staying in shape. Consistent attendance encouraged.

DISCO DANCE – Karen Shulda J024

Sec 1 Thursday, 7-8 p m , 8 weeks, begins June 8, $21

Consists of basic hustle movements, line dances, and disco-jazz techniques. Work with or without partner.

JAZZ DANCE: BEGINNING – Donna Potter J025

Sec. 1 Monday & Wednesday, 6-7:30 p.m., 8 weeks, begins June 5, $53.

For people with little or no dance training; emphasis is placed on enjoyment and learning basic skills of jazz dance training with routines practiced following warm-up. Techniques drawn upon are Alwin Nikolais, Horton & Luigi. Consistent attendance is encouraged

MODERN DANCE: BEGINNING – Ellen Inkellis J026

Sec. 1 Monday & Wednesday, 3-4.30 p.m., 8 weeks, begins June 12, $53.

For the student with little or no dance experience. Work on developing strength, flexibility, and coordination through various modern techniques. Modern techniques include Horton & Limon. Enthusiasm and consistent attendance a must.

TAP DANCING: BEGINNING – Janny Densmore J027

Sec. 1 Monday, 6-8 p.m., 8 weeks, begins June 5, $37.

Get the lead out of your feet! For students who have had little or no tap-dancing experience. No special talents are necessary because anyone who WANTS to learn to tap can. Begins with basic steps of tap, combining with steps into routines. Emphasis on moving in rhythm to musical selections from the 30's and 40's Class is open to all; be prepared for vigorous fun. (Expenses: $3-$10.)

TAP DANCING: ADVANCED – Janny Densmore J028

Sec. 1 Monday, 8-10 p.m., 8 weeks, begins June 5, $37

Start your feet drumming! A sequel to Beginning Tap for people who have tap-dancing experience. Teaches variations of all rudiments presented in Beginning Tap, including time/steps, rhythm steps, syncopated tap. Emphasis on the development of personal style, signature steps, and individual choreography. Movement is vigorous to musical selections from 1930 to the present

East/West Foundation

The East/West Integral Studies Program is a group of workshops designed to be a means of sharing knowledge and skills with one another. Presented in Amherst by the Division of Continuing Education in association with the East/West Foundation, located in Boston, the Integral Studies Program covers a broad range of subjects, including practical study and experience, and underlying principles and theory.

ACUPUNCTURE MASSAGE – Ken Burns J029

Sec. 1 Wednesday, 6:30-9 30 p.m., 8 weeks, begins June 7, $55.

Acupuncture (Shiatsu or finger pressure) massage, unlike Swedish massage, aims at treating illness by readjusting the flow of ki along the acupuncture points or meridians. Requires no special knowledge or instruments, and has been commonly practiced in the Orient for thousands of years. Covers basic oriental methods of diagnosis and how to learn important points Students learn to give complete massage

WILD FOODS/HERBAL MEDICINE – Ken Burns J030

Sec. 1 Thursday, 6:30-8:30 p.m., 8 weeks, begins June 8, $55

Sources of learning about local herbs. In addition to field and forest, discusses written materials, and botanical reserves such as Arnold Arboretum and the Garden of the Woods of the New England Wild Flower Society. Includes physical characteristics, season of flowering, favored terrain, and traditional uses; the Chinese Element Theory, brief survey of American, European, Russian, Chinese, and Japanese Herbal Folk medicines, healing on the cosmological level.

Foreign Languages

GRADUATE READING COURSE – GERMAN 409 – Sabine Bridges J032

Sec. 1 Monday-Friday, 9-10:30 a.m., 6 weeks, begins May 30, $75.

For graduate students preparing for the M.A. or Ph.D. reading examination. No previous knowledge of German required

GRADUATE READING COURSE – FRENCH 470 J031

Sec. 1 Monday-Friday, 9-10:30 a.m., 6 weeks, begins May 30, $75.

For graduate students in other departments preparing for their M.A. or Ph.D. reading examination. No previous knowledge of French required.

SWEDISH FOR THE TRAVELER – Margareta Tristan J092

Sec. 1 Monday, 6:30-8.30 p.m., 8 weeks, begins June 5, $37.

Basic spoken Swedish for travelers to Sweden. Born and educated in Sweden, the instructor provides popular vocabulary with a minimum of grammar. Make friends and enjoy the smorgasbord with Svensk flair. Learn to find your way around a thousand year old town, and select a train to a small village. Those with some knowledge of Swedish are welcome.

Instrumental Music

BASIC FOLK GUITAR: FINGER STYLE – Vincent Mitchell J033

Sec. 1 Monday, 7-9 p.m., 8 weeks, begins June 5, $39

Guitar care, tuning, picking technique, notereading, basic chords, basic theory, tablature, back-up picking, picking styles, listening session, song swap, traditional songs, and songs by Simon, Paxton, Guthrie, Cohen, "Sing Out" magazine articles.

JAZZ/ROCK GUITAR: BASIC – Vincent Mitchell J034

Sec. 1 Tuesday, 7-9 p.m., 8 weeks, begins June 6, $39.

Guitar care, tuning, plectrum technique, notereading, basic chords, position scales,

12-bar progressions, improvising (pentatonic, blues, and major scale), rhythm chords, lead chords, and basic chords, listening session, songs from standard and popular repertoire, magazine articles, music theory, guitar theory. Required reading: Mitchell and Ferry, *Moveable Position Scales for Guitar* available from instructor at first class.

JAZZ/ROCK GUITAR INTERMEDIATE — Vincent Mitchell J035

Sec. 1 Thursday, 7-9 p.m., 8 weeks, begins June 8, $39

Follow-up to basic Jazz/Rock workshop, as well as for other players with basic knowledge. Plectrum technique, notereading, position scales (major, pentatonic, blues, diminished) scale theory, chord theory, guitar theory, lead chords, rhythm chords, improvising, 12-bar progressions, songs from popular and jazz repertoire. Required reading: Mitchell and Ferry, *Moveable Position Scales for Guitar*; available from instructor at first class.

SONGS OF BOB DYLAN — Vincent Mitchell J036

Sec. 1 Wednesday, 7-9 p.m., 8 weeks, begins June 7, $39

Playing and learning guitar music for two or three Dylan songs per session. Reading material from a variety of sources. Guitar techniques in both flat pick and finger style. Tracing Dylan songs from first recording to present. Listening sessions. Students must have knowledge of basic chording.

REAL ESTATE CERTIFICATE PROGRAM

COURSES BEGIN JUNE 5, 1978

- Managing and Selling Investment Properties
- Effective Negotiating Techniques in Real Estate
- Modern Real Estate Practices
- Appraising Residential Properties

Seminars are designed to provide students with a broad base of information and a fundamental understanding of the real estate profession. For further information and registration, please call (413) 545-2040, or write the Real Estate Program, Division of Continuing Education, Hasbrouck, University of Massachusetts, Amherst, MA 01003. APPROVED FOR ELIGIBLE VETERANS.

Personal Growth

DREAMS AND DREAM INTERPRETATION — Steven Bengis J037

Sec. 1 Tuesday, 7:30-9:30 p.m., 8 weeks, begins June 6, $37

Theoretical and practical. Basic theoretical foundations of Jungian Depth Psychology through lectures, readings, and dream examples. Focuses on dreams of participants who voluntarily share dreams for analysis.

HATHA YOGA: BEGINNING — Adele Mack J039

Sec. 1 Monday & Wednesday 6-7:30 p.m. 4 weeks begins June 5, $31

Based on the premise that good health is discipline. Explores Hatha Yoga, asanas, and pranayama. Leads to relaxation at will, greater powers of concentration; includes a review of proper nutrition.

MEN AND WOMEN: PEOPLE WORKING TOGETHER — Joan P. Eignor and Donald Gelinas J040

Sec. 1 Tuesday, 9 a.m.-5 p.m., June 20, $26

Organizations are people functioning collaboratively in defined roles. The roles must be defined by the results expected and the work performed if the organization is to maximize its potential from goal achievement. These roles, more and more, are being filled at all organization levels by both men and women, a trend toward full utilization of all our human resources. Unfortunately, most men and women have been socially conditioned into masculine and feminine role concepts which work against this process. Deals with the issues arising as a result of role conflict through case studies, role-playing, discussion and lectures.

SELF DEFEAT AND SELF ACTUALIZATION — John Barbaro J041

Sec. 1 Monday, 7-9:30 p.m., 8 weeks, begins June 5, $46.

Self-defeating behaviors are those habits and personal patterns of living that impede the achievement of one's goals. Workshop systematically isolates those behaviors and their different aspects. Underlying motives are outlined and workable alternatives are discussed. Recommended readings: A. Lakin, *How to Get Control of Time and Your Life*; M. Schiffman, *Gestalt Self Therapy*; S. J. Warner, *Self Realization and Self-Defeat.*

CHILDREN'S CREATIVE RESPONSE TO CONFLICT — Ray Reisler J085

Sec. 1 Saturday, 9 a.m.-4 p.m., July 15, $20

Cooperation, affirmation, communication, and creative conflict resolution are covered in a developmental progression. Through exercises, students learn to build support, trust and cooperation in the classroom and in the home. Techniques practiced can also help reduce adult conflict.

Photography

PHOTOGRAPHY: BASIC — Richard Barrell J042

Sec. 1 Tuesday, 2-5 p.m., 8 weeks, begins June 6, $53.
Sec. 2 Tuesday, 7-10 p.m., 8 weeks, begins June 6, $53

Introduces photography, the use of cameras, lenses, filters, light meters, and other equipment. Demonstration of processing techniques by instructor. (For darkroom experience see workshop below.) Includes 16mm films, slides, pictures, books, and handouts. Recommended reading: Upton & Upton, *Photography* $13.95

BRIEF INTRODUCTION TO DARKROOM PROCEDURES — Richard Barrell J043

Sec. 1 Wednesday, 7-10 p.m., June 7, $15.
Sec. 2 Wednesday, 7-10 p.m., June 14, $15
Sec. 3 Wednesday 7-10 p.m., June 21, $15
Sec. 4 Wednesday, 7-10 p.m., June 28, $15.
Sec. 5 Wednesday, 7-10 p.m., July 5, $15.
Sec. 6 Wednesday, 7-10 p.m., July 12, $15.
Sec. 7 Wednesday, 7-10 p.m., July 19, $15.
Sec. 8 Wednesday, 7-10 p.m., July 26, $15.

For students who have had basic photography instruction or who enroll simultaneously in Basic Photography, above. For those who wish to expand their photographic knowledge to include developing skills. Class meets in a darkroom and students are guided through the processing and enlarging of black and white photographs. Discussion of procedures and equipment necessary for doing darkroom work at home. Students must bring one roll of exposed black and white film and one package of photo paper to class. (Expenses: $6-$8.)

PHOTOGRAPHY: INTERMEDIATE — Richard Barrell J044

Sec. 1 Thursday, 7-10 p.m., 8 weeks, begins June 8, $53

Focuses on improvement of technique as a preparation for expressive photography. A different photographic technique explored each week, i.e., glassware, jewelry, portraits, and copywork. Students must bring to all classes an adjustable camera with black and white or color film. 16mm films, books and slides provide examples of well-known photographers' work. Students must make their own arrangements for film processing, workshop does not include darkroom.

DEVELOPING BLACK AND WHITE DARKROOM SKILLS — Carol Reck J045

Sec. 1 Tuesday, 7:30-10 p.m., 8 weeks, begins June 6, $75
Sec. 2 Wednesday, 7:30-10 p.m., 8 weeks, begins June 7, $75

Learn to make your own black and white photographs. Step by step, clear presentation of developing film, making contact sheets and enlargements, and mounting and presentation of finished print. Discussion of students' and other photographers' work, illustrated by slides, supplements darkroom demos and practice. Relaxed atmosphere and limited class size encourage full participation by each student. Limited to five students per section.

Skills/Career

GO HIRE YOURSELF AN EMPLOYER — William D. McCarty J046

Sec. 1 Wednesday, 6:30-9:30 p.m., June 21, $11.

Practical workshop to show you how to get the job you want. Learn how to sell yourself and avoid pitfalls. Emphasis on oral communication, confidence-building, and interview techniques, both personal and by telephone. Explanation of SIC codes. Individual resumes and company selection. Locations of your choice studied.

IMPROVING YOUR WRITING/IMPROVING YOUR JOB: INTRODUCTION TO TECHNICAL WRITING — James Schuler J047

Sec. 1 Tuesday, 7-9 p.m., 8 weeks, begins June 6, $38

Many careers require forms of written communication. Improving your writing skills can help advance your career. Introduces concepts of mechanics and grammar, business correspondence, report forms, patents and copyrights, information control systems, research and bibliography.

BOOKKEEPING: BASIC — Kevin Aiken J048

Sec. 1 Thursday, 7-9 p.m., 8 weeks, begins June 8, $39.

A summary of basic bookkeeping for beginners. Covers cash basis and accrual basis bookkeeping systems, journal entries, cash disbursements, journal posting to ledger accounts, payroll, balance sheets, and income statements. Areas of interest to students emphasized as time permits.

JOB INTERVIEWING SKILLS — Joan Eignor, Garrett McAuliffe, and Harry Neunder J049

Sec. 1 Wednesday, 2-4 p.m., June 21, $5.

You have only one-half hour to sell yourself—can you do it? Introduction to basic attitudes and techniques helpful in the job interview. Includes discussion, small groups, and role playing.

RESUME WRITING – Lillian B. Silver J050

Sec. 1 Monday 7-9 p.m. 2 weeks begins June 5 $13

A concise well-written resume can lead to personal interviews and jobs you might otherwise not get. Workshop covers various aspects of resume writing: content, style, format, how to emphasize your assets, experience, and qualifications. Students write a resume which is assessed by the instructor. Cover letters are discussed.

SHORTHAND – Nancy Aiken J051

Sec. 1 Thursday, 7-9 p.m., 8 weeks, begins June 8, $37.

Introduction to Gregg Shorthand which includes the most frequently used alphabetic characters, brief forms, and word building principles. Designed to facilitate notetaking for professional and personal use. (Expenses: $8.75 for Shorthand Kit.)

Skills/Student

ALTERNATIVE RESOURCES AT THE UNIVERSITY – David Baillie J052

Sec. 1 Monday & Tuesday, 7-9 p.m., 2 weeks, begins June 5, $21

Explains credit for prior life experience, transdisciplinary education (e.g. psychology and computer science, business administration and human services) and trans-institutional programs (e.g., Five College resources). Explores how the University can match the educational needs of students in an institution of higher education. Covers BDIC, International Programs, Office of Internships, Project Inquiry, Exchange Programs, CAOS (Counseling Assistance for Older Students). Aim is to prevent students from saying, "If I had only known." Required reading: *If I Had Only Known*, $2.50, available from the instructor at first class.

BASIC MATH: CONCEPTS AND SKILLS–SPANISH AND ENGLISH – Mauricio S. Lerner J053

Sec. 1 Wednesday, 7-9 p.m., 8 weeks, begins June 7, $20

Theory and development of basic math application. Arithmetic, algebra, geometry, trigonometry, on an introductory level. Some applications of math in "the real world." Workshop is bilingual: Spanish/English. Helps prepare students for the high school equivalency exam in mathematics.

CAREER DECISION MAKING – Garrett McAuliffe J054

Sec. 1 Wednesday, 1:30-4 p.m., 5 weeks begins July 12, $25

Learning about and using an approach toward sound career planning. Two dimensions: self awareness and job/career information. Take-home assignments, small group discussion, use of career resource library, option to take interest inventory. Be prepared to work hard on this important issue. (Expenses: $7, for workbook.)

LIBRARY: TECHNIQUES OF ADVANCED LITERATURE AND INFORMATION SEARCH – Joyce Merriam J055

Sec. 1 Wednesday, 6:30-8:30 p.m., 2 weeks, begins June 7, $21

Advanced and graduate students can get more out of library resources. This two part workshop aims to help advanced and graduate students use library resources efficiently and improve their expertise in library research. Emphasis on access to journal and report literature through specialized indexes, abstracts, and computer retrieval systems. In addition, library catalogs and other major reference material are briefly examined and their relationship to the inter-library loan process discussed. Participants develop guidelines for a review of the literature in their chosen field. NOTE: Students must contact, at least one week in advance, Joyce Merriam, 545-0150, Reference Department on the main floor of the Library, to determine special needs and thus insure individual attention.

MATH ANXIETY/MATH LEARNING SKILLS – Dennis Anello J056

Sec. 1 Wednesday, 7-10 p.m., 7 weeks, begins June 7, and Thursday, 7-10 p.m., June 8, $54

For those who have previously experienced difficulty and/or anxiety in attempting to learn math. In supportive, safe environment, encourages dealing with anxiety and/or blocks, so that the math can be taken in. Not a review of the formulas of basic math. Stresses process and developing analytical thinking skills and strategies for learning and understanding math. Work with arithmetic processes, functions, decimals, percentages, graphs, word problems and basic algebra. Please note: There is a corresponding workshop designed specifically for women which is listed in the Women's section.

RESUME WRITING – Joan Eignor, Garrett McAuliffe, and Harry Neunder J057

Sec. 1 Wednesday, 2-4:30 p.m., June 14, $5.

You know you have the talents. You know you can do the job. How do you look on paper? Your resume can open the door. Individuals create a resume to be critiqued by instructors.

STUDY SKILLS – Bonnie Gutnick J058

Sec. 1 Tuesday & Thursday, 7-8:30 p.m., 4 weeks, begins June 6, $30
Sec. 2 Tuesday & Thursday, 7-8:30 p.m., 4 weeks, begins July 11, $30.

Covers time management, library use (including a tour), test-taking skills, reading efficiency, note-taking skills, and basic study skills. Required reading: *Study Skills/A Student's Guide for Survival*, Wiley Press, $3.95, available from instructor.

TIPS ON HOW TO GET INTO COLLEGE – William D. McCarty J059

Sec. 1 Saturday, 9 a.m.-12, June 10, $11.

What do admissions officers want to know? How to prepare for PSAT and SAT tests. What do the scores mean and how important are they? When to start looking at colleges. How to choose the right one. Discusses early decision plans and how to get a general commitment of acceptance before sending money to apply officially. Information on scholarships.

Sports/Outdoor

SCUBA DIVING – Bob Sparks J060

Sec. 1 Monday, 6:30-9:30 p.m., 6 weeks, begins June 5, $55
Sec. 2 Wednesday, 6:30-9:30 p.m., 6 weeks, begins June 7 $55
Sec. 3 Thursday, 6:30-9:30 p.m., 6 weeks, begins June 8, $55

NAUI scuba workshop. Basic preparation in diving, including an introduction to diving physics and physiology, marine environment, underwater navigation, diver rescue training and dive planning. Emphasis on development of underwater skills and safe use of scuba equipment. Includes nine hours of classroom instruction and nine hours of pool instruction. Prerequisite: Must be able to swim one-quarter mile and tread water for 10 minutes. Bring bathing suit and towel to first class. Fee includes use of scuba equipment, *except* mask, fins, and snorkel, which students must bring to second class meeting (instructor will provide tips on buying). Required reading: Strykowski, *Diving for Fun*, $4, available from the instructor. (Optional: for NAUI certification, three open water dives may be arranged at the conclusion of the workshop.)

SPORTS SCUBA – Bob Sparks J061

Sec. 1 Tuesday, 6:30-9:30 p.m., 4 weeks, begins June 6, $55.

NAUI sport diving certification workshop. Comprises advanced dive training with an emphasis on dive planning, diver rescue, diver physiology, underwater navigation, and marine environment. Students must provide their own equipment. Includes 12 hours of classroom instruction and eight of dive time, including two night dives scheduled at the students' convenience. Prerequisite: Students must be certified divers.

TENNIS: BEGINNING – Instructor to be announced J062

Sec. 1 Monday & Wednesday, 5:30-6:30 p.m., 8 weeks, begins June 5, $25.

Fundamentals of stroke dynamics—balance, coordination, and rhythm. Includes forehand, backhand, and serve; rules of the game, scoring, and beginner's strategy. Open to anyone with a desire to learn and the motivation to practice. Bring a racket, a can of balls, and wear sneakers.

TENNIS: INTERMEDIATE – Instructor to be announced J063

Sec. 1 Monday & Wednesday, 6:30-7:30 p.m., 8 weeks, begins June 5, $25.

For those tennis students who can already hit groundstrokes with some consistency. Rudiments of forehand and backhand, and techniques to achieve more powerful and accurate strokes. Introduces correct execution and use of the serve and the volley, match play, and how to buy tennis equipment. Bring a racket, a can of balls, and wear sneakers.

Workshops for Women

The following workshops are designed to meet the special needs of women. They were developed by Linda Spataro, former Coordinator of Project Self. The Everywoman's Center cooperated with publicity for these workshops.

ART AS SELF DISCOVERY – Emily Kahn J064

Sec. 1 Monday, 7-9 p.m., 8 weeks, begins June 5, $38.

Designed for women with little or no art background. Focus is on making art in order to learn more about yourself, and communicating ideas and feelings through visual means. Different art making processes such as masks, self-portraits, body-image drawings, fantasy houses, dream images, autobiographical collage and sculpture are explored. Discussions include work by women artists, past and present, and the basic issues in art and the feminist art movement.

MONEY MANAGEMENT: BASIC – Helen Roberts J065

Sec. 1 Monday & Tuesday, 7-9 p.m., 4 weeks, begins July 10, $15.

Money management can be learned. Focus is on basic skills and techniques for wise use of income. To manage one's income in today's economy requires many decisions and choices. Life styles, values, goals and standards need to be evaluated—changed in many cases—in order to live thriftily and efficiently. Includes lecture, discussion, record-keeping and assigned readings.

BEGINNING AND ADVANCED-BEGINNING SWIMMING – Anne McComb J066

Sec. 1 Monday, Tuesday, Wednesday, & Thursday, 5-6 p.m., 3 weeks, begins June 12. Also meets Wednesday, July 5, and Thursday, July 6, 5-6 p.m., $37

Many women have never had the opportunity to become involved in athletic

activity A skill such as swimming can enable a woman to become more in touch with her body and to feel comfortable with her competence in the water For non-swimmers and novice swimmers who want to feel more at ease in the water and more efficient with swimming strokes Special attention to those afraid of the water. Red Cross program for beginners is used; certification offered for those interested.

CAREER AND LIFE PLANNING FOR WOMEN – Marguerite Cookson and Milca Cardinal J067

Sec. I Thursday, 7 9 30 p m , 6 weeks begins June 8 $35

For women looking for career options or attempting to make decisions about starting or changing careers. Focuses on values clarification, life planning techniques, skills identification, job/career selection, job interviewing techniques, and resume writing, using group discussion and written exercises to teach women a process of career planning. Required reading: Kathleen Hart Broad, *Self Guided Career Counseling* (Expenses $5)

EFFECTIVE JOB LEADERSHIP – Bette Taylor J068

Sec. I Tuesday, 6 10 p m 4 weeks begins July 11 $37

Many women are not used to being leaders being visible speaking with confidence or having expectations of others Therefore, they are unsure of how to supervise and manage people on a job Provides information and practice in skills that allow us to be comfortable and effective in these kinds of responsibilities

FOR WOMEN OVER 40 EXPLORING AND GROWING – Joanne Parke J069

Sec. I Tuesday 7 9 p m 8 weeks begins June 6 $30

In an open, supportive environment older women study, discuss, and abstract issues which are relevant to their lives. Participants study women's history as an aid to putting present lives into historical perspective. Issues discussed are aging, fear of success (or is it fear of failure?), risk taking, children leaving home, loneliness, and aloneness

INVESTMENT PLANNING FOR WOMEN – Jan Barbour J070

Sec. I Wednesday 7 9 p m 6 weeks begins July 12 $29

Covers the basics of investment planning, examining various investment vehicles in the context of the overall financial plan. Federal, municipal, and corporate securities, tax sheltered investing, retirement planning, and finding the professional help you need are also discussed

LIBERATING OUR INNER ATHLETE: PHYSICAL ACTIVITY EXPERIENCES FOR WOMEN – Pat Griffin J071

Sec. I Saturday & Sunday June 10 & 11 10 a m 5 p m and Tuesday 7-9 p m June 13, 20, and 27, $49

For women who feel they have lost touch with their bodies and want to rediscover the joy of sport experience and physical activity. In a non-competitive and supportive group setting students will participate in sport and physical activity; explore personal and social patterns that work against women feeling comfortable and competent in sport and physical activity and explore strategies to change self-defeating personal patterns of feeling and acting in sport and physical activity. Activities include swimming, physical activity games, and individual and group initiative tasks

MATH ANXIETY AND WOMEN – Jill Ullian J072

Sec. I Wednesday, 7 30-9 30 p m , 7 weeks begins June 14, and Thursday 7 30 9 30 p m June 15, $38

For women who feel anxious when faced with a problem involving math In a supportive, non competitive atmosphere women focus on what blocks them from doing math, where these blocks may have come from, including personal influences as well as sex role stereotypes, and how to begin to get past these blocks Emphasis on dealing with anxiety and beginning to learn basic math skills, rather than on quantity of math learned (Expenses $1)

RESPONSIBLE PERSONAL AND PROFESSIONAL ASSERTION – Bette Taylor J073

Sec. I Thursday, 7-10 p m 6 weeks begins June 8, $3'

What is the difference between aggression and assertion? If women have been taught to be passive, is it possible for them to change their behavior at home and on the job? What will be the consequences? Each person has the opportunity to explore her own answers to these questions in a supportive atmosphere. Strong emphasis on making decisions and working at each individual's pace

WOMEN AND WORK – Bette Taylor J074

Sec. I Tuesday, 6-10 p.m., 4 weeks, begins June 6, $37

Relates to the experience of women in the world of work: in traditional jobs, in the home, and in the volunteer community. Students discuss the meaning of work and its relationship to one's self-image, women's choices and locations in the occupational structure, organizational climates and their impact on women's potential, as well as other issues relevant for the participants

WOMEN'S HEALTH CARE – Ellen Miller-Mack J075

Sec. I Wednesday, 7:30-9:30 p.m., 8 weeks, begins June 7, $38.

Focus on the structure and function of the reproductive system and its demystification, as well as the management of common gynecological problems including venereal disease and vaginitis. Topics include how to get the most out of your health care provider, overcoming the obstacles within the system such as inaccessibility of medical information, sexism and heterosexism, contraception, pregnancy, abortion, female sexual response, and menopause. The aim is to gain a better understanding and acceptance of women's unique sexuality and to become more comfortable with one's body.

WOMEN'S SELF-DEFENSE – Sharon Anderson J076

Sec. I Thursday, 6:30-8:30 p.m., 8 weeks, begins June 8, $38.

Consists of physical workouts including conditioning exercises, strikes, blocks, releases, and kicks Topics include verbal harrassment, fears of hurting, and myths concerning violence against women.

WRITING FOR AND ABOUT OURSELVES – Jyl Felman J077

Sec. I Wednesday, 7-9:15 p.m., 7 weeks, begins June 7, $37.

Women have their own stories to tell about the world around them Our lives are worth writing about. For women who want to write about their lives and what is important to them. Women gain a better understanding of the writing process, how words, sentences, and paragraphs function together. The basic fundamentals of writing are stressed by experimenting with form: journal writing, storytelling, poetry, letter writing, etc. Individual attention through conferences. Open, relaxed atmosphere encourages writing about personal lives. Goals are an understanding of the specifics of writing, ability to organize, develop and sustain a particular idea, and to end the workshop with a bit of your life collected on paper

Writing

WRITING FROM THE INSIDE OUT – Marea Gordett J078

Sec. I Monday, 7:30-9:30 p m., 8 weeks, begins June 5, $37.

Attempts to break down the conscious barriers that have been built up around free expression Exercises in free writing, stream of consciousness, and image building create individual and unique poetry, drama, and stories. Dream journals provide a source of material for more sustained imaginative writing.

EDUCATING THE IMAGINATION: WRITING FICTION – James Schuler J079

Sec. I Thursday, 7 9 p m 8 weeks, begins June 8, $39

Attempts to stimulate the novice or experienced writer's imagination through class discussion of submitted work, presented orally or in writing Exercises concentrate on unleashing the imagination so that aspiring writers can gain clearer insight into how they see their world and their place in it.

WRITING AND YOU – John Murphy J080

Sec. I Tuesday & Thursday, 7-9 p.m., 4 weeks, begins June 6, $39

Autobiographies are usually written by 'great' or famous people in history. Offers a format in which ordinary folks can take themselves serious y as subjects for autobiography. Students discover what autobiographers have always known. it is through writing and thinking about the past that one can hope to understand one's contemporary experience. Students learn that the best way to acquire writing skills is to write about a subject which is of immediate personal interest. People interested in autobiography but who are dubious about their writing ability should not hesitate to enroll.

And More...

ANIMAL MANAGEMENT FOR THE SELF-SUFFICIENT FARM OR HOMESTEAD – Edward T. Kingsbury J081

Sec. I Wednesday, 7-10 p.m., 8 weeks, begins June 7, $53.

Livestock and poultry management directed toward the needs of the self-sufficient and small scale farmer. All classes of livestock and poultry will be considered, with emphasis on species of particular interest to class. Topics include: animal evaluation and selection, feeding, housing, breeding, health needs, and care of young animals. Special attention given to the interrelationships between different farm animals and how they are combined for maximum efficiency. Discussion of general farm management as it relates to animal agriculture

BARTENDING (MIXOLOGY) – James Dunn J082

Sec. I Tuesday, 7-9 p.m., 8 weeks, begins June 6, $37

Step by step procedures in the art of mixology. Instructions for one hundred alcoholic drinks, demonstrations for mixing drinks, the bartenders' tools, wine service, history and differences of beers, and the production of spirits

BASIC FORESTRY FOR SMALL WOODLOTS – Robert Mack and Charles Thompson J083

Sec. I Wednesday, 7:30-9:30 p.m., and Saturday, 9-11 a.m., 5 weeks, begins June 7, $46

Principles of forestry to help make sound decisions for the management and use of woodlot. Identification of important tree species, woodland ecology, woodlot improvement activities, forest measurement techniques. Saturday field sessions to examine various forest situations Students work out prescriptions for improvement of actual sample areas

CHAINSAW USE, MAINTENANCE, AND SAFETY FOR BEGINNERS – Robert Mack and Charles Thompson J084

Sec. I Saturday, June 10, 12-5 p m $16

Use of gasoline chainsaw for felling, limbing, and bucking trees. For those with little or no experience who would like to process their own firewood. Sharpening

and routine maintenance are covered. Emphasis is on safety considerations. Class held in local woodlot with demonstrations and limited opportunity for practice. Students must provide their own saws for active participation, but workshop is also useful for those considering purchase of a chainsaw.

DEATH EDUCATION FOR THE HELPING PROFESSIONS — Ray Reisler J086

Sec. 1 Saturday, 9 a.m.-4 p.m., June 3, $20.

Suggests ways in which death, as a reality of life, can find its way into the classroom. Students discuss methods and create materials to involve children in activities which expand their understanding of death. Increases the confidence and ability of teachers and parents to confront death as an important educational and personal subject, worthy of open, informed, and sensitive discussion.

DESIGNING A SOLAR GREENHOUSE — Peter Kitchell J087

Sec. 1 Tuesday, 7-9 p.m., 8 weeks, begins June 6, $38

Design a solar greenhouse to heat itself and help heat your home. Based on recent research and examples of solar greenhouses, with or without manufactured components, owner-built or contracted. Includes site considerations for both freestanding and attached greenhouses, selecting or designing supplementary mechanical and greenhouse equipment; comparison of various materials for performance, durability and cost; review of class designs. Workshop held in Amherst Center.

KOREAN KARATE: THE ART OF TAE KWON DO — Giles S. Hopkins J088

Sec. 1 Monday, 7-9 p.m., 8 weeks, begins June 5, $38.

Korean Karate is one of the most ancient of the martial arts. It was first developed as a means of defense at a time when weapons were outlawed. The study of Tae Kwon Do continues today for many reasons: as a method of self-defense, exercise, and discipline for the mind and body; to achieve speed, power, balance, accuracy, and focus in action. Tae Kwon Do is both a science of weaponless combat and an art of graceful movement.

REAL ESTATE LICENSE PREPARATION — David Ryan J089

Sec. 1 Tuesday, 7-10 p.m., 8 weeks, begins June 6, $60.

Basic knowledge and practice in real estate. Terms, instruments, and relationships, both legal and financial, are stressed in an analysis of real property brokerage, valuation, and financing. Provides base from which students can explore specialized areas of real estate, excellent preparation for the Massachusetts Real Estate License Examination. Textbook may be purchased the first evening of class for $17.50.

This workshop has been approved for 2.4 CEUs which will be awarded to all participants attending all sessions (24 required contact hours).

The CEU is designed for in-service professionals and non-professionals who want to maintain a record of their participation in approved non-credit continuing education programs. For a more complete description of CEUs, see **Continuing Education Unit** *under General Information.*

TRADITIONAL FOOD FOR THE NEW AGE — Paula Chadis-Gallagher J090

Sec. 1 Thursday, 7-10 p.m., 8 weeks, begins June 8, $55.

Recapture the art of cooking and eating principal foods. Experience the centering qualities of corn, oats, rye, barley, rice, wheat, millet and buckwheat. Savor the richness of sauteed, baked, steamed, and tempura land and sea vegetables. Develop a taste for local wild vegetables collected and prepared as part of this workshop. Learn to create high quality protein by tastefully combining grains, beans, seeds, and nuts. Discover alternatives to meat and dairy by learning to make and cook to-fu and seitan in a variety of ways. Techniques for making desserts using health giving fruits, nuts, grain malt, syrups. Practical areas explored: how to make the transition to a more health giving diet, how to raise your family's consciousness concerning food and health, how to lose and maintain weight, how to use low technology tools, i.e. hand mills, grinders. Workshop held in Hadley. (Expenses: $5.)

TROPICAL PLANT FAMILIES AND THEIR CULTURE — John Tristan J091

Sec. 1 Tuesday, 6:30-9:30 p.m., 8 weeks, begins June 6, $54.

A systematic review of important plant families for indoor and greenhouse cultivation. Opportunity to become acquainted with many 'exotics.' Cultural techniques, propagation, and general plant care considered for selected groups, including gesneriads, bromeliads, begonias, orchids, cacti and succulents, foliage plants, and tropical herbs. Some discussion of plant geography and the adaptation of plants for indoor use. Responsive to the specific interests of the class. Labs in a greenhouse setting.

LAW SCHOOL ADMISSIONS TEST (LSAT) PREPARATION — Michael D. Ford J093

Sec. 1 Monday, Tuesday, Wednesday, & Thursday, 2 weeks, begins June 19, 7-9 p.m., and Saturday, July 1, 9 a.m.-1 p.m., $40

Prepares students to take the LSAT exam administered on July 15, 1978. First eight sessions focus on, cases and principles, quantative comparison, data interpretation, practical judgment, logical reasoning (two sessions), and writing ability. Saturday class includes administration of a practice exam under timed conditions to simulate actual examination procedures. Reading: *Law School Admission Test*, Monarch Press, $5.95, available from the instructor the first evening of class.

Credit-Free Workshop Registration * Summer 1978

The following information must be provided before your application can be processed

Name Mr. Ms. FIRST NAME INITIAL LAST NAME

Address NUMBER STREET

CITY STATE ZIP CODE

Phone (H) Area Code If No Phone, Write "None" Work Phone Area Code If No Phone, Write "None"

Marital Status _____ Age _____ Female Male

OPTIONAL Your answers to these questions will guide us in planning future workshops. The information will be confidential if you choose to answer.

1 How did you find out about these workshops? _____

2 What other workshops would you like to have offered? _____

3 Occupation _____ Full time Part time

4 Are you a student? _____ Full time Part time

Where? _____

5 Have you taken a CE workshop before? _____

1. Workshop No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____
Alternative Choice No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____

2. Workshop No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____
Alternative Choice No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____

3. Workshop No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____
Alternative Choice No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____

4. Workshop No. Title: _____
Section No. Day _____ Time _____ Date _____ Fee _____
Alternative Choice No. Title _____
Section No. Day _____ Time _____ Date _____ Fee _____

Alternative Choice—In the event of cancellation or overenrollment, your second choice.

FULL PAYMENT MUST ACCOMPANY MAIL REGISTRATION

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Amherst MA 01002

TOTAL WORKSHOP FEES $ _____

TOTAL AMOUNT DUE AND ENCLOSED $ _____

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Amount Received $
Received By
Date Received
Comments

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Check No.
Credit Card
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CREDIT CARD PAYMENT

Please bill my

Mastercharge Bank No. _____

Expiration Date _____

Credit Card Number _____

Signature _____

Division of Continuing Education
University of Massachusetts at Amherst

Credit-Free Workshops

Summer 1978

Summer Workshops Calendar

	April 21-May 22	*Mail Registration*
	After May 22	*Walk-In Registration (space available basis)*
Monday	June 5	Workshops begin (unless otherwise noted in the workshop description)
Tuesday	July 4	Holiday—No Classes
Saturday	August 5	Workshops end (workshop schedules vary—consult Workshop Descriptions)

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Toward Tomorrow '78

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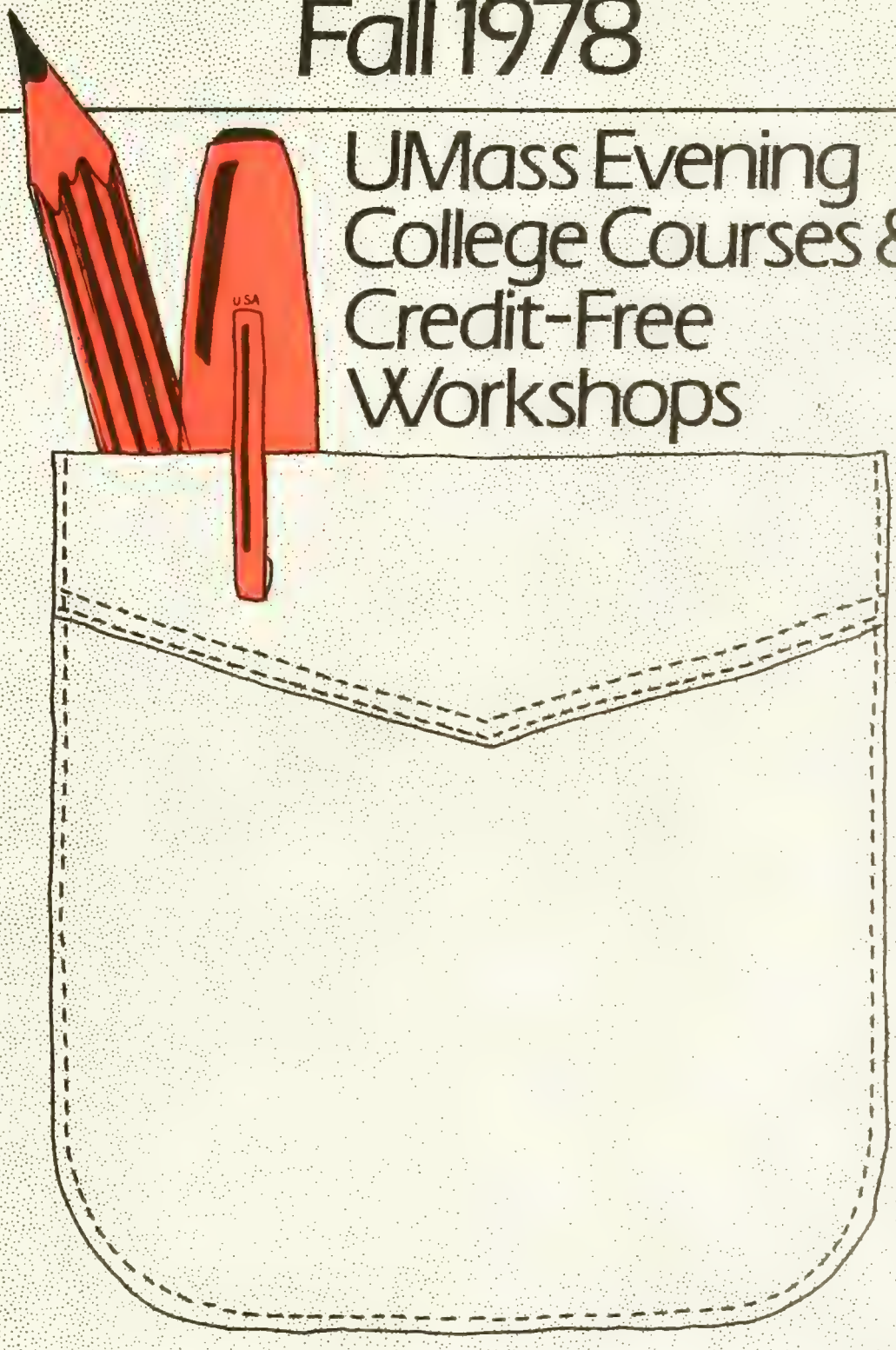
Fall 1978



UMass Evening College Courses & Credit-Free Workshops

Division of Continuing Education
University of Massachusetts/Amherst

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All information contained herein is subject to existing University regulations at the time of registration.

Continuing Education Offices

Special Assistant to the Provost:
Sharon A. Keillor
121 Hasbrouck, 545-3420

Continuing Education:
William C. Venman, Director
131 Hasbrouck, 545-3420

Academic Services:
Kevin Grennan, Director
123 Hasbrouck, 545-3420

Evening College:
Charles Heller, Director
109 Hasbrouck, 545-3410

Credit-Free Workshop Program:
Merilee Neunder, Director
109 Hasbrouck, 545-3410

Office of the Registrar:
Irene Nagler, Registrar
115 Hasbrouck, 545-3653

Business Manager:
John Shea
119 Hasbrouck, 545-3420

Business Office:
Christopher Pile, Accountant
106 Hasbrouck, 545-1560

Citizen Involvement Training Project:
David Magnani, Coordinator
138 Hasbrouck, 545-3450

Program Development:
104 Hasbrouck, 545-2040

Records and Registration:
113 Hasbrouck, 545-3653

Student Services:
Joan Eignor, Director
105 Hasbrouck, 545-3430

Technical Guidance Center for Environmental Quality:
Ruth Kreplick, Director
135 Hasbrouck, 545-0347

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Evening College/Academic Calendar

	July 10-August 18	Mail Registration
Monday	August 14	Early Registration/Holyoke
Tuesday	August 15	Early Registration/Northampton
Tuesday	August 15	Early Registration/Wilbraham
Wednesday	August 16	Early Registration/Springfield
Wednesday	August 16	Early Registration/Greenfield
Thursday	August 17	Early Registration/Palmer
Wed., Thurs., Fri. & Sat.	August 23, 24, 25 & 26	IN-PERSON REGISTRATION/AMHERST
Tuesday	September 5	Orientation for Continuing Education students and Faculty at Worcester Dining Commons, UMass, 8:30 p.m.
Wednesday	September 6	FIRST DAY OF CLASSES LATE REGISTRATION BEGINS
Tuesday	September 12	End of Late Registration for **Graduate** Level University courses
Tuesday	September 19	END ADD/DROP PERIOD (WITHDRAW, NO RECORD) Last day to sign up for PASS/FAIL and AUDIT options
Wednesday	September 20	Beginning "W" Period (WITHDRAW WITH RECORD)
Tuesday	October 3	Last day to drop courses with a "W" (WITHDRAWN)
Monday	October 9	Holiday *(Columbus Day)* NO CLASSES
Tuesday	October 10	Last day to withdraw with a % refund Last day to pay Health Services and Health Insurance fees
Wednesday	October 11	Monday class schedule will be followed for all day and evening classes
Saturday	October 21	Friday class schedule will be followed for all day and evening classes
Friday	November 10	Holiday *(Veteran's Day)* NO CLASSES
Wednesday	November 22	Thanksgiving recess begins after last class
Monday	November 27	Classes resume
Saturday	December 16	Last day of classes
Monday	December 18	Final examinations begin
Saturday	December 23	Last day of final examinations Semester ends
	January 2-20, 1979	Wintersession

Courses at all locations follow the above calendar. In the event of a schedule conflict, the calendar of the School or College where a class is located will be followed.

REFUND SCHEDULE*

September 6-19	80%
September 20-26	60%
September 27-October 3	40%
October 4-10	20%
After October 10	NO REFUND

*Please see page 7 for further information on refunds.

Credit-Free Workshop Calendar

	July 10-September 15	Mail Registration
	After September 15	Walk—In Registration (space-available basis)
Monday	September 25	Workshops begin (unless otherwise noted in the workshop description)
Monday	October 9	Holiday (Columbus Day)
Wednesday	October 11	Monday workshop schedule will be followed (Wednesday workshops *do not* meet)
Wednesday	November 22	Thanksgiving recess begins after last workshop
Monday	November 27	Workshops resume
Saturday	December 9	Workshops end (workshop schedules vary—consult individual workshop descriptions)

REFUND SCHEDULE*

First meeting	80%
Second meeting	60%
Third meeting	NO REFUND

*See page 40 for further information.

Registration Information

July 10-August 18

Mail Registration
$10 Registration Fee in addition to course fees*
All Evening College Courses

August 14

Early Registration/Holyoke
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Holyoke Public Library
Time: Monday 5-7 p.m.

August 15

Early Registration/Northampton
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Forbes Public Library
Time: Tuesday 5-7 p.m.

August 15

Early Registration/Wilbraham
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Wilbraham Public Library
Time: Tuesday 5-7 p.m.

August 16

Early Registration/Springfield
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Springfield Public Library
Time: Wednesday 5-7 p.m.

August 16

Early Registration/Greenfield
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Greenfield Public Library
Time: Wednesday 5-7 p.m.

August 17

Early Registration/Palmer
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Palmer Public Library
Time: Thursday 5-7 p.m.

August 23, 24, 25 & 26

IN-PERSON REGISTRATION/AMHERST
$10 Registration Fee in addition to course fees*
All Evening College courses
Undergraduate UMass/Amherst courses on a space-available basis.
Location: First floor, Hasbrouck, south wing
Time: Wed. and Thurs. 10 a.m.-4 p.m. & 6-8 p.m.
Friday 10 a.m.-4 p.m.
Saturday 10 a.m.-2 p.m.

August 28-September 1

Registration Continues
All Evening College courses *in which spaces remain*
Location: CE Records Office, Room 113 Hasbrouck, south wing
Time: Regular office hours, see page 4.

September 6-19

Late Registration/Amherst
$15 Late Registration Fee in addition to course fees*
Evening College courses
Undergraduate UMass/Amherst courses (on a space-available basis, written permission required)
Location: CE Records Office, Room 113, Hasbrouck, south wing
Time: Mon. through Thurs. 9 a.m.-7 p.m.
Friday 9 a.m.-5 p.m.
Saturday 10 a.m.-1 p.m.

September 7

Late Registration/Palmer
$15 Late Registration Fee in addition to course fees*
Evening College courses
Location: School Library, Pathfinder Regional High School, Palmer
Time: Thursday 5-7 p.m.

September 13

Late Registration/Holyoke
$15 Registration Fee in addition to course fees*
Evening College courses
Location: Building B, Room 201, Holyoke Community College
Time: Wednesday 5-7 p.m.

*$5 reduction in Registration Fee for those students registering *only* for Evening College courses held off the Amherst campus.

General Information

Registration & Records

Admissions

Any person who has graduated from high school or who has certificate of General Educational Development is entitled to nroll in undergraduate courses offered by the Division of Con- nuing Education at the University of Massachusetts at Amherst. he Division assumes that the student will accurately assess his r her ability to take a college level course. It is the student's esponsibility to observe prerequisites for individual courses. **nrollment does not imply acceptance into a degree program.**

In accordance with University policy, University of Massa- nusetts students under academic suspension or academic ismissal may not enroll in courses offered by the Division of ontinuing Education.

Mail Registration

1. To register by mail simply complete the registration rm in this publication and mail with full remittance to:
   Evening College, AE 78-4
   Division of Continuing Education
   University of Massachusetts
   Amherst MA 01003
2. Make checks payable to **Continuing Education, AE 78-4.** All registrations must include total course fees plus a one- me per semester on-campus registration fee of $10. Stu- nts registering *only* for courses held at off-campus locations ed pay only a $5 registration fee.
3. Deadline for mail registration is an August 18 postmark.
4. Mail registrations will be confirmed by return mail in te August. Room assignments will be included in mail con- rmation. Class sizes are limited, so register early.

hone Registration

Students choosing to make payment by American Express, aster Charge or VISA may register for Evening College courses telephone. Please select courses carefully, and telephone the ntinuing Education Records Office at (413) 545-3653. one registrants must supply all personal data requested on the ail-in registration form (see page 24) and all credit card num- rs including Master Charge Bank number and expiration date.

-Person Registration

To register in person for Continuing Education courses listed this catalog, come to one of the following locations:

Holyoke
Holyoke Public Library
Monday, August 14
5-7 p.m.

Northampton
Forbes Public Library
Tuesday, August 15
5-7 p.m.

Wilbraham
Wilbraham Public Library
Tuesday, August 15
5-7 p.m.

Springfield
Springfield Public Library
Wednesday, August 16
5-7 p.m.

Greenfield
Greenfield Public Library
Wednesday, August 16
5-7 p.m.

Palmer
Palmer Public Library
Thursday, August 17
5-7 p.m.

Amherst
Hasbrouck, first floor, south wing, UMass/Amherst
Wednesday, Thursday, Friday, Saturday,
August 23, 24, 25 and 26

Wed. and Thurs.	10 a.m.-4 p.m. & 6-8 p.m.
Friday	10 a.m.-4 p.m.
Saturday	10 a.m.-2 p.m.

CIVIL RIGHTS OF THE MENTALLY DISABLED

Examines leading case law and legislation affecting mentally disabled persons. Emphasis on federal and Massachusetts laws. Attention to: the right of the mentally disabled to an appropriate education, the right of the mentally disabled to treatment in the least restrictive setting, the right of the mentally disabled to consent to treatment and the right to refuse treatment. The wide range of civil rights, normally taken for granted by citizens at large. Lectures, discussions; case-study method.

legal 297M

Registration, University Classes

Undergraduate

Regular *undergraduate* University of Massachusetts classes are available to Continuing Education students on a space-available basis. To register for the available spaces, students must appear in person on August 23, 24, 25 or 26 at Hasbrouck, first floor (see preceding section for times). A complete list of courses unavailable as of August 23 will be posted in the main corridor. Students are reminded that the greatest number of individuals are expected to register on Wednesday, August 23. Students who plan to register in courses that do not usually meet capacity enrollment will find it more convenient to come on Thursday, Friday or Saturday, August 24-26. Students may *not* register for University classes prior to August 23, *nor* during the period August 28-September 5.

Graduate

The Division of Continuing Education *may not* register post-baccalaureate students in *graduate* University courses except for those graduate courses offered in Continuing Education's Evening College Program or Response Courses. Undergraduate students wishing to register for graduate University courses may usually do so with the written permission of the instructor. Post-baccalaureate students wishing to register for graduate courses must complete a "Non-Degree Student Application" form in accordance with the Graduate School policy, which states that "admission to the Graduate School is to be prerequisite to enrollment in any UMass graduate course for credit or audit." Applications are available from the Continuing Education Records Office, 113 Hasbrouck, and from the Graduate Admissions Office, Graduate Research Center, University of Massachusetts, Amherst MA 01003. Registration for graduate University courses will take place September 5 at Boyden Gymnasium, 9 a.m.-noon and 1:30-4:30 p.m. For further information concerning application and registration in graduate University courses, call the Graduate School at (413) 545-0024. The deadline for graduate University course registration is September 12.

Records and Registration Office Hours

Monday-Thursday	8:30 a.m.-7 p.m.
Friday	8:30 a.m.-5 p.m.
Saturday	10 a.m.-1 p.m.
(closed holiday weekends)	

Phone: (413) 545-3653
Location: 113 Hasbrouck

Change of Program

Students must formally notify the Division of Continuing Education, *in writing*, of all Adds, Drops and Withdrawals. Changing from one section to another of the same course is considered to be an Add and a Drop.

During the Add/Drop Period, September 6-September 19, students may add courses; students may also drop courses with no record. September 20-October 3, dropped courses will be noted on the student record with a "W" indicating Withdrawn. After October 3, students needing to drop a course must petition the Director of Continuing Education for approval of a late "W". Failure to use proper procedure could result in the recording of an "F" as a final grade. Students dropping courses during the Refund Period will receive refunds only if proper procedures are followed. Please check the Evening College Calendar for the Refund Schedule and additional notations of Add, Drop and Withdrawal periods.

Transcripts

Undergraduate

Permanent records of all undergraduate courses taken through the Division of Continuing Education are maintained by the Division, and are *not transferred automatically* to other offices on campus, such as the Registrar's Office or the Graduate Records Office. Requests for transcripts must be made in writing either by letter or by official Transcript Request Card. Be sure to include the complete address of the person or institution to whom the transcripts will be sent. When requesting a transcript sent to the Student Development Center, please specify if it is for a certification or credentials folder.

Official transcripts will be sent only to Registrars or Recording Officers of institutions and to recognized business addresses. *Student copies*, so designated, may be obtained by following the same procedure. The first two transcripts will be issued free of charge. There will be a $2.50 charge for all subsequent transcripts. Address transcript requests to:

Transcript Request
Division of Continuing Education
Hasbrouck
University of Massachusetts
Amherst MA 01003

Graduate

Effective Fall, 1976, permanent records of all graduate level courses taken through the Division of Continuing Education are maintained by the Graduate Records Office. The first two transcripts requested are issued free of charge. There is a $2.50 charge for subsequent transcripts.

Address graduate transcript requests to:
Graduate Transcript Office
A247 Graduate Research Center
University of Massachusetts
Amherst MA 01003

Cancellations

Continuing Education courses are funded solely by the fees students pay. Unfortunately, each semester there are courses in which enrollments are not sufficient to compensate faculty. These courses will be canceled at the discretion of the Division. To allow students time to enroll in other courses, decisions to cancel are made as soon as possible after in-person registration on the basis of the number of enrollments at the time. **Students are therefore urged to register as early as possible** in order to give as accurate an assessment as possible of the number of students who want to enroll in each course. Those students affected by course cancellations will be notified by mail. Students not wishing to enroll in an alternate course will receive a full refund as soon as it can be processed.

In the event of severe weather conditions or other emergencies, it may be necessary to cancel classes. Usually, when University day classes are canceled, evening classes are also

canceled. Announcements will be made over local radio stations.

The Division reserves the right to cancel, add or combine sections of courses listed in this publication or to change instructors if necessary.

Credit/Degrees

Credit

Credit offered through the Division of Continuing Education is resident University of Massachusetts credit unless otherwise stated.

Degrees

The Division of Continuing Education offers part-time study which may lead to any undergraduate degree currently offered by the University of Massachusetts. Some degrees require enrollment in day courses. The Bachelor of General Studies Degree, also conferred by the University of Massachusetts, is a degree unique to the Division of Continuing Education. See **BGS**, page 26.

Matriculation Policy

Matriculation, or acceptance as a degree candidate, is based on a satisfactory performance (grade point average of 2.0 or better) in a specified number of University of Massachusetts courses, and declaration of a program of study.

Students not planning to transfer into the University's full-time program and who anticipate receiving a baccalaureate degree through the Division of Continuing Education should apply for matriculated status as soon as they have completed the appropriate number of credits. See chart on this page.

Bachelor of General Studies (BGS) students must have an approved BGS proposal on file with the Division of Continuing Education prior to matriculation. This requirement is waived for BGS/Criminal Justice, Fire Science and Liberal Studies students only.

Effective September 1, 1978, a $15 processing fee will be required of all matriculation applicants.

Further information and an application may be obtained from the Records Office of the Division of Continuing Education, located in Hasbrouck, Room 113, 545-3653.

Matriculation Chart:

No. of Transfer Credits	No. of UMass/CE Credits
60 or more	15
48-59	18
36-47	21
24-35	24
12-23	27
0-11	30

Core Requirements

The University of Massachusetts core is a block of at least 33 credits within the specified 120 credits needed for graduation. Students must complete core requirements by taking certain specified courses in several fields of learning. An introduction to the humanities and fine arts, for instance, may be fulfilled by the successful completion of at least three courses chosen from those identified by the letter "C" after the course title. Core courses are distributed as follows.

The Adult Liberal Studies Program and the Springfield Library and Museums Association offer adults an opportunity to study for credit among the collections, archives and exhibits on the Springfield Quadrangle. General humanities courses of unusual breadth and appeal taught by outstanding area educators will be offered on a variety of topics.

This Fall you can

...examine the arts of East Asia in the collections of the Springfield Museum of Fine Arts and the George Walter Vincent Smith Museum.

...learn how great American literary minds have viewed their geographical environments—the wilderness, the frontier, the garden, and landscape as a mode of expression.

...discover how to interpret history through the artifacts and architecture of Historic Deerfield, Sturbridge, Salem and Old Boston.

...analyze the competition between man and insect for what plants produce: how this struggle has affected agricultural development; influenced technological, political, and economic development; and will affect the future.

Adult Liberal Studies

For exact course descriptions, times and places, please contact Dr. F. Robinson at (413) 545-2040.

B Core: 6 credits in written and spoken English, usually offered by the Rhetoric Department. (One course from Rhetoric 100 level, the other Rhetoric 110 or above.) These courses are identified by the letter "B."

C Core: 9 to 12 credits in humanities or fine arts, generally from the departments of Afro-American Studies, Art, Classics, Comparative Literature, English, History, Linguistics, Music, Philosophy and designated foreign literature courses. These are identified by the letter "C."

D Core: 9 to 12 credits in social or behavioral sciences, generally from the departments of Afro-American Studies, Anthropology, Economics, Political Science, Psychology, and Sociology. These are identified by the letter "D."

E Core: 9 to 12 credits in mathematics or natural sciences, generally from the departments of Astronomy, Botany, Chemistry, Mathematics, Physics, Statistics, and Zoology. These are identified by the letter "E."

Note: Consult with a Student Services advisor to determine if the chosen major is one that requires 12 credits in each of the "C", "D" and "E" areas.

Courses in this catalog which may be applied toward the completion of University core requirements are designated by a capital letter, in parentheses, following course titles as they appear in the Evening College course descriptions.

Overloads

Policy normally restricts Continuing Education students to enrollment in a maximum of three separate courses or 11 credits in any one semester. Exceptions to this policy will be considered only if students fill out a petition for overload.

Please be aware that late applications for overload or delay in presenting necessary documents may prevent students from registering before the end of the Add/Drop Period. Petitions may be obtained in the Student Services Office, 109 Hasbrouck.

Credit Options

Individualized Study

Individualized Study offers students the opportunity to pursue a topic of interest with an instructor. The student and the instructor design an individualized course by completing a contract which specifies objectives, planned activities and the method of evaluation. The instructor will be compensated for his/her work.

Information and contracts may be obtained from Garrett McAuliffe, Room 101 Hasbrouck, 545-3430.

Individualized Studies may be begun at any time during the semester; the fee is $35 per undergraduate credit and $50 per graduate credit, and a $5 registration fee.

Auditing

Students may choose to audit a course and have that audit recorded on the permanent record as an "AUD" provided that: 1) the student officially registers and pays all course fees; 2) the student officially elects the class as an audit (all requests must be submitted to the Continuing Education Records Office by the end of the Add/Drop Period, September 19, 1978; 3) the student satisfies the instructor regarding his or her preparation and motivation for auditing the class; 4) the student satisfies all the criteria for a successful audit as stipulated in advance by the instructor.

College Level Examination Program (CLEP)

CLEP is a national program of credit-by-examination that offers the opportunity to obtain recognition for college-level achievement, no matter when, where, or how learning has been acquired—by means of formal or informal study. If the results are acceptable, college credit is given, applicable toward an undergraduate degree.

Further information about costs, and registration forms may be obtained from the Division of Continuing Education, 545-3430, or the Community Development Center, Berkshire House, 545-0333.

Credit for Military Service

Special training programs completed during U.S. military service may qualify for transfer credit. Students wishing to receive transfer credit should submit documentation of completed programs or courses to a Continuing Education advisor.

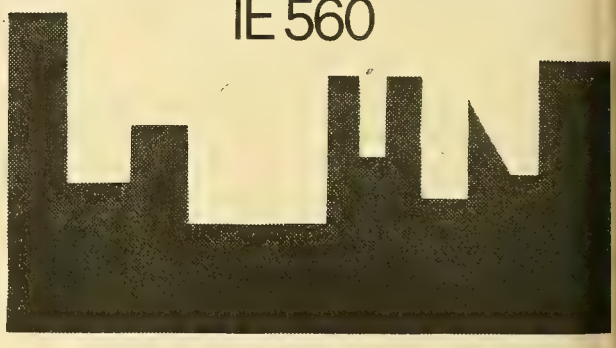
Pass/Fail Option, Continuing Education

Continuing Education students are eligible to use a pass/fail option in one course each semester. The student may elect to take up to and including five University core requirement courses on a pass/fail basis. **All requests to employ the Pass/Fail Option must be filed with the Continuing Education Records Office prior to the end of the Add/Drop Period (September 19, 1978).**

Pass/Fail Policy, School of Education

Current School of Education policy mandates that the majority of courses given under the supervision of the Schoo of Education, both graduate and undergraduate, are graded on a pass/fail basis only. This is not optional on the part of the student.

Changes in this policy are now under discussion for possib implementation during the fall semester. For further information, call or write Mike Schwartz, 125B Education Buildin University of Massachusetts, Amherst MA 01003, (413) 545-2701.



Occupational health and safety for industrial engineers. Attention to Federal requirements of the Occupational Safety and Health Administration (OSHA).

Safety Engineering

:xpenses

Course fees are based on the number of credits per course d the level, undergraduate or graduate, of these credits. ease see page 11 for an explanation of the course numbering stem as it pertains to undergraduate or graduate level courses. d credits. The number of credits per course is listed in the hedule of courses on page 27. Massachusetts residency does t affect the course fee.

Credit Fees

Undergraduate	$35 per credit
Graduate	$50 per credit

The following fees are not refundable except for officially ncelled courses.

Registration Fee (charged once per semester) **$10**
Required of all students enrolling for any course held on the UMass/Amherst campus

Required of all students enrolling *only* for off-campus courses **$5**

Late Registration Fee
(charged once per semester) **$15**
Required of all students registering after August 26 for any *on-campus* course

Required of all students registering after August 26 for any *off-campus* course **$10**

Laboratory Fee
(a limited number of courses) **variable**
Assessed *after* beginning of semester. Fee is indicated in the Schedule of Courses.
Do not include with registration payment.

Change of Program Fee **$2**
Charged for each change recorded.

Matriculation Fee **$15**
Charged only upon student initiation of the matriculation process

Commencement Fee **$10**
Assessed during semester of graduation

Optional Fees

Fine Arts Fee	*$3*
Health Services Fee	*$58.50*
Health Insurance Fee	*$67*
Available only with Health Services Fee	
General Recreation Fee	*$5*
Paid at Bowling Alley, Boyden Gymnasium	
Picture Identification Card	*$1*
Student Activities Fee	*$35.50*

yment

Full payment of registration fee and all course fees must be de at the time of registration. Payment may be made by h, check, American Express, VISA (BankAmericard) or Master Charge. To make a credit card payment for a mail registration, complete the appropriate section on the registration form. All credit card identifying numbers (including bank number for Master Charge cards), credit card expiration date, and credit card holder's signature *must* be included.

Refunds

When a student drops a course, instructional and other costs must still be met. Therefore, refunds of course fees are adjusted according to the following schedule:

Refund Schedule

September 6-19	80%
September 20-26	60%
September 27-October 3	40%
October 4-10	20%
After October 10	NO REFUND

Refund Schedule for courses of less than six weeks duration as follows:

First week of class	50%
After first week	NO REFUND

Refunds for course drops made by mail will be computed according to the date of postmark.

There are two exceptions to the refund policy: 1) a student involuntarily called to military service before the completion of a course will be given a pro rata refund of course fees; 2) students enrolled in courses which are cancelled due to lack of enrollment will be given a full refund.

Explanation of Optional Fees

The Division is pleased to be able to make available the following University services and programs for Continuing Education students. These programs and services are optional. Payment instructions for each are listed below.

Fine Arts Fee

The Fine Arts Center will present an outstanding concert series during the 1978 season. Performing artists will include: Boston Symphony, Moscow Symphony, Martha Graham Dance Company, Carlos Montoya, P.D.Q. Bach and Broadway Shows: "California Suite," "The Wiz" and "Side by Side."

Payment of the Fine Arts Fee allows students to purchase tickets at a 50% discount. This fee is payable at the Continuing Education Records Office, Room 113, Hasbrouck.

Health Services Fee

University Health Services staff is responsible for the direct provision of a wide range of integrated services. Primary care physicians serve as family doctors and coordinate the nature and extent of services to assure quality care, whether it is provided in the Health Center or under the supplementary insurance program. Laboratory, x-ray, physical therapy, pharmacy, specialty clinics, inpatient facilities, and other services are also available at the Health Center.

The student health program also provides mental health consultation, including short-term and group psychotherapy, a dental program, health education activities in such areas as drug use, nutrition, common health ailments and human sexuality, and an environmental health and safety monitoring unit.

The Health Services Fee is $58.50 for Fall semester only

(effective date: September 5, 1978), and is payable to the Division at the time of registration. **Students must enroll for at least six credits to be eligible.**

Health Insurance Fee

University Health Services offers students a hospital, surgical and medical program to supplement the on-campus care.

This insurance provides coverage from September 6, 1978 to August 31, 1979 for specific medical expenses due to injury or emergency illness which causes loss that commences while the policy is in force, including University holidays, summer vacation, and other times when the student is away during the insured period.

This insurance plan offers liberal benefits for services provided by participating physicians and hospitals. The Cooley Dickinson Hospital and groups of general and orthopedic surgeons have entered into an agreement with University Health Services to provide high quality services at no additional cost to the subscriber. Emergency treatment and *authorized* specialist services in a non-participating hospital and by a non-participating physician, however, are covered to $5,000 per occurrence. The insurance brochure is available from the Division of Continuing Education or University Health Services.

Note: Services obtained outside the University Health Center must be authorized in advance by a physician participating in the health plan in order to receive coverage from this insurance.

The cost for September 6, 1978 to August 31, 1979 is $67. Students must pay the Health Services fee of $58.50 in order to purchase the insurance, the fee for which is payable to Continuing Education at the time of registration.

Dependents Health Services Fee

Students who pay a Health Services fee are eligible to enroll their dependents (spouse and/or children) in the Health Services Program. The payment of this fee will allow the student's dependents to receive the same comprehensive health services presently available to students at the University Health Center. Interested persons should contact the Business Office of the University Health Center.

General Recreation Fee

Continuing Education students may pay a $5 general recreation fee, which entitles them to use facilities such as pools, bowling alleys, or gyms, and equipment as it is available. A locker or basket may be obtained on a space-available basis. All services and facilities are regulated by the Office of Athletics/Intramurals, and Continuing Education students are expected to conform to established policies.

Payment should be made at the bowling alley in Boyden Gymnasium where an I.D. card will be issued.

Picture Identification Cards

Picture I.D. cards are available to Continuing Education students at a cost of $1. Interested students should come to the Continuing Education Records Office, 113 Hasbrouck, to obtain a receipt of $1 payment and a verification of student number. New students should allow at least 48 hours after registering for the assignment of the student number.

When the picture is taken, the I.D. Office will require a second form of identification. I.D. cards may be picked up at the Continuing Education Records Office 24 hours later.

Picture I.D. cards will be validated each semester.

I.D. pictures will be taken during daytime and evening hours specifically set for Continuing Education students:

In-Person Registration

Wednesday, August 23	9 a.m.-4 p.m./169 Whitmore 6-8 p.m./Hasbrouck
Thursday, August 24	9 a.m.-4 p.m./169 Whitmore
Friday, August 25	9 a.m.-4 p.m./169 Whitmore

Prior to the first day of classes

August 28-September 1	9 a.m.-4 p.m./169 Whitmore

After classes begin

Tuesday, September 12	6-7:30 p.m./Hasbrouck
September 19 and thereafter	9 a.m.-4 p.m./169 Whitmore
Wednesday, September 20	6-7:30 p.m./Hasbrouck

The I.D. Office is normally closed every Tuesday and Thursday morning until noon. Except for the evening hours scheduled on September 12, no pictures will be taken during the period September 2-18.

Student Activities Tax

This tax supports student government and an extensive and varied range of cultural and social activities for students. In addition, payment entitles each student to admission to many campus events and includes a subscription to the daily student newspaper, the annual yearbook, the student handbook, and a student guide to the campus.

Housing

University residence halls are available on a space-available basis to Continuing Education students wishing to live on campus during the semester. Historically, the Fall semester is overcrowded for the first few weeks. Students should have alternate plans for this period. Information and applications may be obtained from the Housing Office, 235 Whitmore, Administration Building, University of Massachusetts, Amherst MA 01003.

UMass Student Federal Credit Union

The UMass Student Federal Credit Union is student owned and operated. It offers savings accounts, check cashing privileges for members and low interest loans, and distributes food stamps. Membership is open to any registered full- or part-time student of the University, their families, persons paid with SATF funds, and student organizations. Membership is for life. All accounts are insured by the Federal government. For further information, call (413) 545-2800.

Masspool

The Division of Continuing Education is providing a service called **MASSPOOL**, the Commonwealth of Massachusetts Car Pooling Program. Recognizing that almost all Continuing Education students use automobiles to commute to Amherst and to off-campus locations, and that automobile transportation costs are increasing, the Division has made arrangements

o identify individuals interested in car pooling during the emester. Information packets and a grid locater are located n Room 113 Hasbrouck. For further information, please call he Evening College Office at (413) 545-3410.

Parking Costs

Amherst

Any student who registers for a class held on campus etween the hours of 7 a.m. and 6 p.m., and who plans to ark a vehicle on the Amherst campus, must do one of the ollowing: 1) obtain a parking decal from the University arking Office (Room 1, Munson Hall) in order to use ampus lots, 2) park in the Campus Center Parking Garage on a fee-per-hour basis), 3) use metered space. The rates nd privileges for parking are determined by the University. Access to all legal spaces in parking lots is not restricted fter 6 p.m. or on weekends.

Holyoke

Campus parking requires a parking permit, applications or which may be obtained at in-person registration. Those who are registering by mail may request a parking permit application and it will be sent by return mail. The parking application may be taken to the Security Office, Building E, HCC, and a permit will be issued.

Palmer

Pathfinder Regional High School requires no parking permit.

Northampton

Hawley Junior High School requires no parking permit.

Textbooks

Amherst

The Textbook Annex of the University of Massachusetts stocks books for Continuing Education courses and has extended its hours for the convenience of Continuing Education students. Information on books will be posted in the Annex. Blue counter cards signify Continuing Education courses.

The University Store and Textbook Annex hours for spring are listed below.

	Store	Annex
Tues., Sept. 5	9 a.m.-9 p.m.	9 a.m.-5 p.m.
Wed., Sept. 6	9 a.m.-9 p.m.	9 a.m.-9 p.m.
Thurs., Sept. 7	9 a.m.-9 p.m.	9 a.m.-9 p.m.
Fri., Sept. 8	9 a.m.-5 p.m.	9 a.m.-5 p.m.
Sat., Sept. 9	10 a.m.-4 p.m.	10 a.m.-3 p.m.
Sun., Sept. 10	Closed	Closed
Mon., Sept. 11	9 a.m.-5 p.m.	9 a.m.-7 p.m.
Tues., Sept. 12	9 a.m.-5 p.m.	9 a.m.-7 p.m.
Wed., Sept. 13	9 a.m.-5 p.m.	9 a.m.-5 p.m.
Thurs., Sept. 14	9 p.m.-5 p.m.	9 a.m.-5 p.m.
Fri., Sept. 15	9 a.m.-5 p.m.	9 a.m.-5 p.m.
Sat., Sept. 16	11 a.m.-4 p.m.	Closed
Sun., Sept. 17	Closed	Closed
Mon., Sept. 18	9 a.m.-5 p.m.	9 a.m.-4 p.m.

Holyoke

Textbooks are available at the Holyoke Community College Bookstore. In addition, students have complete access to the college library upon presentation of a current University of Massachusetts Continuing Education picture identification card.

Northampton

Textbooks are available at the Textbook Annex of the University of Massachusetts. Please see the previous schedule. In addition, students have complete access to the Smith College Library upon presentation of a current University of Massachusetts Continuing Education picture identification card.

Palmer

Textbooks are available at the first class meeting.

Student Services

Academic Advising/Counseling

The advising staff of Student Services is available to aid students in planning their educational and/or career goals. An advisor will be available in Amherst Monday-Thursday, 9 a.m.-7 p.m., Friday, 9 a.m.-5 p.m., and on Saturday by appointment, call (413) 545-3430. **Although an appointment is not always necessary, it will help us if we know you are planning to come.**

Off-Campus Advising

Continuing Education students and others who may be interested in receiving academic counseling off campus may meet with members of the Student Services staff at Holyoke Community College. Call 545-3430 for appointments for the specific room location at Holyoke Community College.

Financial Assistance

"On-Time" Deadline for Applications—July 14, 1978
Final Deadline for Applications—September 1, 1978
University Financial Aid—FALL 1978

Only those Continuing Education students carrying six or more credits and enrolled in a degree or certification program may be candidates for financial aid consideration.

Assistance will be awarded on the basis of need and will cover only direct educational expenses.

Students who have not yet received a baccalaureate degree may apply for both National Direct Student Loan (NDL) and a Basic Grant (BEOG). Second baccalaureate and teacher certification candidates, however, may only apply for NDL and are urged to do so *before July 1, 1978,* since these funds are limited.

Financial Aid Application packets and information may be obtained only from the Division of Continuing Education Student Services Office, Room 109 Hasbrouck.

Award notification to "on-time" applicants will be made by mail within three weeks after the end of the Add/Drop

period for that semester. However, the processing time for award checks may take as long as eight weeks after the award is granted, *so students are urged to budget their resources accordingly.*

Ineligible Financial Aid Applicants will be notified by mail as well. These students will be allowed to drop courses without penalty up to 14 days after being notified. If the student is eligible and refuses aid, it is still the student's responsibility to pay for courses taken.

Questions concerning financial aid should be directed to Student Services, 545-3430.

Non-University Financial Assistance

A resource notebook, available in the Student Services reception office, 109 Hasbrouck, contains a list of sources of financial aid outside the University. These special funding agencies require an application directly from the student.

Law Enforcement Education Program (LEEP)

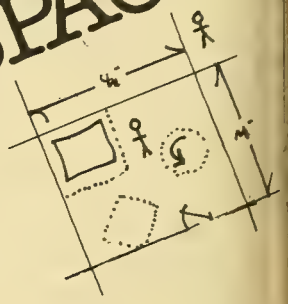
In-service police officers, courts officers, and corrections officers may qualify for grants under the provisions of LEEP. Application forms, which must be submitted *each* semester, are available from Harry Neunder, Room 103, Hasbrouck, or from any member of the Student Services staff, (413) 545-3430. Completed forms must be returned to Mr. Neunder no later than September 20, 1978.

Veterans Benefits

Courses offered through the Division of Continuing Education are approved by the Veterans Administration, and veterans can therefore apply for educational benefits. There are, however, stipulations on benefits for independent study courses and courses not leading to a standard college degree. Continuing Education veterans must see a Continuing Education advisor for degree certification *prior* to activating benefits.

A representative from the Veterans Affairs Office will be available to answer your questions Tuesday and Thursday evenings, 5-7 p.m., Room 109 Hasbrouck throughout the academic semester.

BGS 200 DESIGN & CONSTRUCTION OF A SCHOOL PLAY SPACE



Design and construction of an indoor or outdoor play space for a school. Students participate fully in all aspects of the project: reading and discussion of basic design practices and theory, brainstorming, model building and discussions with staff and pupils at the intended site. Instruction in the use of the basic tools and materials necessary for the project.

Orientation for CE Students

September 5, 1978 8:30 p.m.

Worcester Dining Commons

We'd like to introduce you to:

- CE Staff
- Faculty
- Returning Students
- New Students

and most of all, to a great semester!

Student/Faculty orientation will include a slide show, an information packet, discussion . . . a chance to ease into the upcoming semester. Refreshments will be served.

REGISTER EARLY!

Course Descriptions

nportant Course Description Information

The course descriptions which follow are those which ppear in the University of Massachusetts course directory, which have been approved by the academic departments r inclusion in this catalog. Students are urged to visit an ademic advisor or examine expanded course descriptions cated in the Registration and Records Office, 113 Hasbrouck, the Evening College Office, 109 Hasbrouck.

Course Numbering System effective September 1977.

001-009 **Non-Degree**

100-199 **Introductory lower division**
- —normally taken by freshmen
- —no college level prerequisites
- —departmental courses for freshman majors or equivalent courses for non-majors
- —graduate students may enroll; grades/credits appear on transcript, but do not count toward graduate degree requirements

200-299 **Other lower division**
- —normally sophomore level
- —no college level prerequisites above 100-199 level
- —graduate students may enroll; grades/credits appear on transcript, but do not count toward graduate degree requirements

300-399 **Upper division**
- —typically junior/senior level
- —graduate students may enroll; grades/credits appear on transcript, but do not count toward graduate degree requirements

400-499 **Upper division**
- —typically junior/senior level
- —graduate credit awarded only to candidates *outside* the department's own graduate program
- —many current double-numbered courses here

500-599 **Combined graduate/undergraduate**
- —suitable for graduates and undergraduates
- —post-baccalaureate students receive graduate credit at graduate rate
- —students without a bachelor's degree receive undergraduate credit at undergraduate rate

600-699 **Master's or first year graduate**
- —current double-numbered courses offered mainly at graduate level

700-899 **Doctoral and advanced graduate**
- —if offerings are sequential, prerequisites and intermediate courses are in 700 series; more advanced in 800 series

900-999 **Post-terminal degree**
- —generally used for post-doctoral and other advanced professional studies

It sometimes becomes necessary for the Division to cancel, add or combine sections of courses listed in this publication, or to change instructors.

All courses are for three credits unless otherwise indicated in the Course Descriptions or the Schedule of Courses.

HRTA 211

Food Service Management

Lectures and discussions related to the management of both commercial and institutional food service operations.

ACCOUNTING

School of Business Administration
Acting Dean Jack S. Wolf

Introduction to Accounting I
ACCTG 221

Principles underlying the preparation of financial statements.

Introduction to Accounting II
ACCTG 222

Continuation of ACCTG 221. Emphasis on development and application of accounting data for planning and control.

Business Applications of Computers
ACCTG 311

Covers a variety of computer configurations. Emphasis on: how a computer works, input/output and file storage devices, organization and processing of computer files, data communications, control and security, evaluations of computer systems, operation, management and impact of computers on society. Prerequisites: ACCTG 221, 222 and BA 210.

Financial Reporting I
ACCTG 321

Intensive examination of fundamental concepts underlying financial reporting. Current literature dealing with effects of alternative methods upon measurement of periodic income. Prerequisite: ACCTG 222.

ANTHROPOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Introduction to Archaeology (D)
ANTH 102

The history, methods and theory of archaeology, with an outline of the main characteristics of the prehistoric record throughout the world.

Introduction to Cultural Anthropology (D)
ANTH 104

Social and cultural anthropology dealing with variations among societies in technology and economics, social and political organization, art, religion and ideology.

ART

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Basic Drawing (C)
ART 100-1

Fundamentals of drawing, including: a two-dimensional translation of the three-dimensional world; designing the page; line, mass, illumination, shade-shadow-reflection, contour drawing, drawing without lines, movement, perspective, the figure. Some subject matter areas are the human figure, flora and fauna, portraiture, a rendered study. Weekly homework drawing includes some fixed assignments, many exploring areas of students' personal choice. Traditional as well as simplified-experimental materials. Emphasis on personal development of perception and expression.

Basic Drawing (C)
ART 100-2

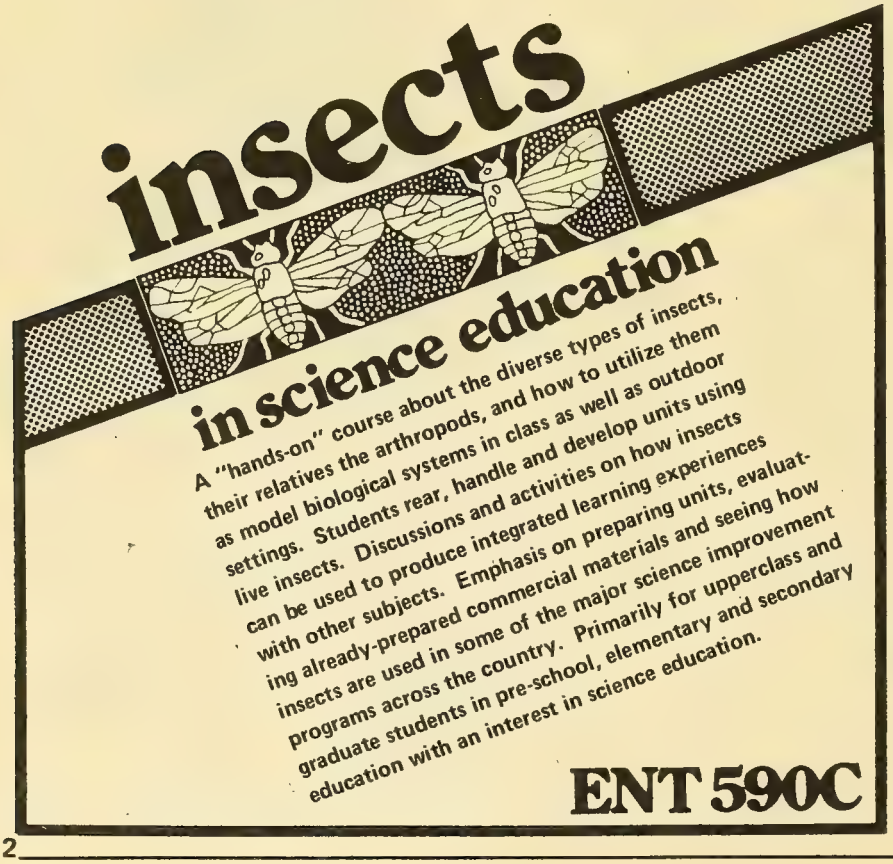
Drawing with pencil and charcoal to understand the use of line and value. Studies in representational and abstract exploration.

Basic Design I (C)
ART 102

Introduction to two-dimensional design. Elements and principles of design presented in discussions and dealt with in projects which cover positive/negative shapes, spatial relationships, dimensionality and color theory. Examples of commercial and studio application. Materials used: paper, paint, photographic images and overlay materials. The assignments should produce pieces that would enhance a student's portfolio.

Painting I (C)
ART 220

The use of color in painting. Assignments increase awareness of the possibilities of color. Emphasis on extending the range of color notation. The variety of colors that can be produced by adding one color to another and the range of intense colors that can be obtained by mixing contrasting colors. A limited palette of acrylic paints is used to develop a wide range of colors. Work is criticized on an individual and group basis. Part of each class devoted to looking at art books and reproductions. Twice during the semester there will be an informal lecture and slide presentation, putting this material in historical perspective. Between 12 and 16 finished paintings, done on gessoed Masonite, canvas board and stretched canvas, are required.



ART HISTORY

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to the Visual Arts (C)
ARTHIS 115

The diverse media of the visual arts from a topical rather than a strictly historical viewpoint. Beginning with the fundamental techniques of formal and stylistic analysis, surveys a wide range of topics in the context of the relation of art objects to their cultures, creators, critics and public.

ASIAN STUDIES

Faculty of Humanities and the Arts
Acting Dean Richard Noland

Introduction to Indo-Tibetan Logic and Epistemology ASIANS 197B

Survey of the major trends in the Buddhist thought of India and Tibet and examination of the Buddhist attitude toward authority and reason, truth, perception, judgment, para-normal cognition, the theory of meaning and reality of the external world. Attitudes of Western and non-Buddhist Indian philosophers considered where relevant. Other areas discussed include ontology, psychology and soteriology. Covers the important intra-Buddhist controversies and points of conflict between Buddhist and non-Buddhist thinkers. (See also **Program Alternatives** section.)

Chinese Religious Thought ASIANS 197C

Traces the rise and growth of Taoism and the Chinese folk religion, Confucianism, and the encounter between Indian Buddhism and classical Chinese philosophy. Focus on such topics as the confrontation of Buddhism and Confucian social order, Buddho-Taoist syncretism, the development of uniquely Chinese Buddhist schools (T'ien T'ai, Hua Yen, and in particular Ch'an) and the impact of Buddhism on Neo-Confucianism. (See also **Program Alternatives** section.)

Elementary Tibetan Language ASIANS 197D

The basic structure of classical Tibetan language. Covers Tibetan script, grammar, morphology and basic vocabulary. Students spend a great deal of time reading selections from classical texts with the instructor's assistance. (See also **Program Alternatives** section.)

Intermediate Tibetan Language ASIANS 297D

Continues where ASIANS 197D leaves off. Refines the student's grasp of grammar and syntax through readings from traditional literature in philosophy, grammar, folklore, historical narrative, biographical narrative and poetry. Flexibility of approach to accommodate each student's capacity and development. (See also **Program Alternatives** section.)

ASTRONOMY

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Exploring the Universe (E) ASTRON 100

Not open to Physical Science or Engineering majors. The earth, its structure and age, the moon, the sun, other planets and the origin of the solar system. Stars and galaxies, their birth and death. The universe, its structure and evolution. Supplemented by occasional hours of evening observation.

BACHELOR OF GENERAL STUDIES

Division of Continuing Education
Sharon A. Keillor, Special Assistant to the Provost

Design and Construction of a School Play Space BGS 200

Design and construction of an indoor or outdoor play space for a school. Students participate fully in all aspects of the project: reading and discussion of basic design practice and theory for the classes, brainstorming, model building and discussions with staff and pupils at the intended site. Instruction in the use of the basic tools and materials necessary for the project.*

Contemporary Practices in Corrections BGS 320 Northampton

Based on the various innovative, rehabilitative efforts practiced nationally in the field of adult corrections at local, state and federal levels. Covers, but is not limited to, investigation and implication of Work Release, Education Release and Human Development Programs within institutions and recently instituted Enlightened Offender Sentencing Procedures. Concurrently studies the effects of these programs on police and court practices and policies. Uses as its text program case studies and presentations by participants in new programs currently in operation.

Criminal Justice Study in Victimization BGS 321

Designed to identify crimes and their victims, explore myths about victims, develop insight into the meaning of victimization, identify resources (local, regional and national) available for victims, examine and research legislation concerning victims of crime. Special attention to victims of sensitive crimes, i.e. rape and child abuse.

Constitutional Issues for Criminal Justice Officers BGS 322

Selected U.S. Supreme Court interpretations of the Constitution and decisions impinging upon law-enforcement functions. Authority to initiate threshold inquiries, arrest offenders, conduct searches and seizures, hold interrogations, and identification procedures. Issues in entrapment, encouragement of criminal activities, surveillance, and undercover operations. Prerequisites: A.S. in Law Enforcement, work experience in the criminal justice system or permission of instructor.

Fundamentals of Fire Protection Engineering BGS 332

Comprehension and evaluation of the need for fire-technology applications. Emphasis on fundamental areas of fire protection: size and scope of fire waste, why fires occur, codes and standards for fire protection, characteristics and behavior of fire, fire hazards of materials, fire-safe building design and fire alarm/detection systems and devices. Occupational Safety and Health Administration (OSHA) and other federal legislation aspects of fire safety.

*Pending approval of the Extension Council.

BOTANY

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

General Botany (E) BOTANY 101 Northampton

Fundamental view of how plants live and grow. Explores man's vital, aesthetic and economic interaction with the plant world from a contemporary and historical point of view.

BUSINESS ADMINISTRATION

School of Business Administration
Acting Dean Jack S. Wolf

Introduction to Business Computers BA 210

The BASIC and FORTRAN computer programming languages. Emphasis on use of the computer for business data processing and problem solving.

Business Policy and Strategy BA 497

An integrative case course requiring identification and possible solution of practical problems encountered by general managers who are responsible at various organizational levels for formulating strategies and their successful implementation.

COMMUNICATION STUDIES

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Introduction to Mass Communication (D) COMSTU 121

The mass communication process; current status, development, structure, function, issues, trends and effects of the major mass media: print (newspaper, magazine), telecommunication (broadcast radio and television and cable television) and film. Emphasis on a factual and conceptual foundation for understanding the role of the mass media in society, a framework for pursuit of specific academic interests in mass communication and creation of critical consumers of mass media offerings.

Mass Media in Society (D)
COMSTU 226

Effects of mass media on U.S. society. Examines issues of agenda setting, news dissemination, advertising, media and politics, minorities, violence and sex, prosocial content and media in the future. Provides information required for advanced study in COMSTU and a better understanding of the mass media as they relate to other disciplines. Readings include: **The Process and Effects of Mass Communication**, ed. by W. Schramm and D. Roberts; **Mass Media Systems and Effects**, ed. by W. Davidson, J. Boylan and F. Yu.

Interpersonal Communication (C)
COMSTU 250

Theoretical and practical understanding of interpersonal communication processes. Emphasis on everyday verbal and nonverbal communication that affects ourselves, others, society and future communication.

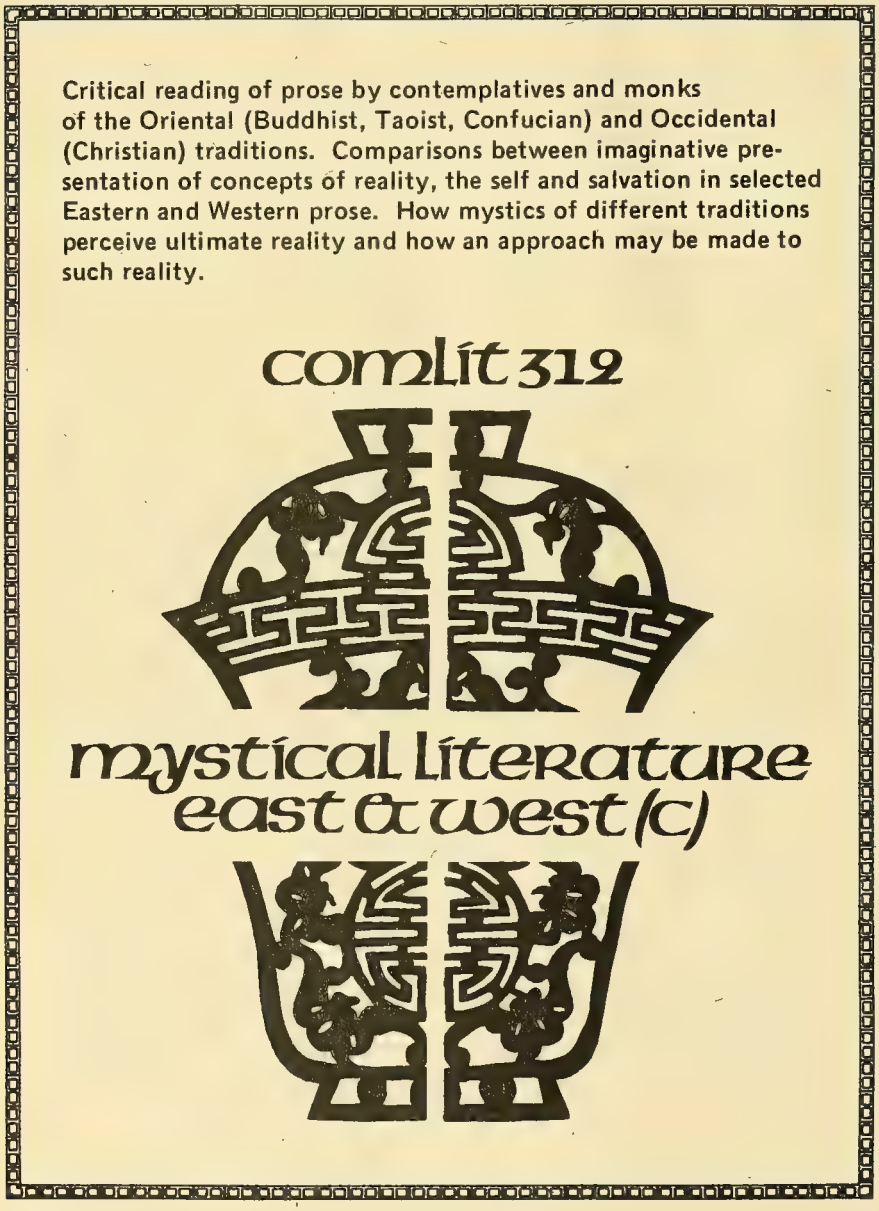
Advanced Public Speaking
COMSTU 260

Preparing and presenting public speeches. For those who want to go beyond the General Rhetoric Program in developing the ability to communicate ideas.

Program Progress in TV
COMSTU 331

The nature and process of producing television programming for commercial broadcasting as well as for other purposes. Critical and scientific research perspectives integrated into studio production exercises. Achieving communication goals in a variety of television program environments. Critical analysis of contemporary television, and color television studio production through a variety of studio assignments.

Critical reading of prose by contemplatives and monks of the Oriental (Buddhist, Taoist, Confucian) and Occidental (Christian) traditions. Comparisons between imaginative presentation of concepts of reality, the self and salvation in selected Eastern and Western prose. How mystics of different traditions perceive ultimate reality and how an approach may be made to such reality.



COMPARATIVE LITERATURE

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Myth, Fairy Tale and Children's Literature (C
COMLIT 110

The world's traditional fairy tale/folk tale literature in relation to the human and social development of the child. Relating the traditional fairy tale, as story pattern and instrument of individual and social development, to contemporary children's literature. Developing critical perspectives for understanding and further enjoying both fairy tale/folk tale and children's literature. Readings may include: Grimm Brothers, folk tale anthologies; **Charlie and the Chocolate Factory**; a "Tintin" book; **Alice in Wonderland; The Little Prince**; works by Bettelheim, Luthi and Piaget.

Mystical Literature East and West (C)
COMLIT 312 Holyoke

Critical reading of prose by contemplatives and monks of the Oriental (Buddhist, Taoist, Confucian) and Occidental (Christian) traditions. Comparisons between imaginative presentation of concepts of reality, the self and salvation in selected Eastern and Western prose. How mystics of different traditions perceive ultimate reality and how an approach may be made to such reality.

COMPUTER AND INFORMATION SCIENCE

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Introduction to Problem Solving Using Computers (E) COINS 122-1, 2

Problem solving and FORTRAN programming for students from all disciplines. Concepts associated with problem solving valid for many types of problems. Use of FORTRAN on the KRONOS time-sharing system. Laboratory included. Credit: 4.

ECONOMICS

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Introduction to Microeconomics (D)
ECON 103

Introductory analysis of resource allocation and income distribution through microeconomic theory. Specific problems illustrate the use of the theoretical precepts developed.

oduction to Macroeconomics (D)
ECON 104 Northampton

ory of the behavior of the American nomy. Emphasis on the goals of full loyment, price stability, economic wth and balance of payments equili- lm.

rmediate Microeconomic Theory
ECON 203

roeconomic analysis of consumers, ns, industries and markets; rational ision making under conditions of ainty; balancing forces in a free enter- e economy. Prerequisite: ECON 103.

DUCATION

hool of Education
an Mario Fantini

nsactional Analysis for Personal and Interpersonal Growth EDUC 290K

ystematic approach to human behavior formulated by Eric Berne. T.A. concepts roduced both didactically and experien- lly to help students foster new under- nding of themselves and their relation- ps with others and to use the insights ned as tools for change. Emphasis on the ividual's learning to trust the self, to nk, to relate more effectively to others d to make better life decisions as T.A. ory is applied to problems of everyday ng. Helpful to teachers, nurses, social rkers, managers, workers in business, rents and students.

emes in the History of Photography EDUC 290L

me of the main historical, biographical, hnical and aesthetic currents relevant the development of photography in nerican education. Wide range of readings, ms and slide/tapes on significant photo- phers, visits to exhibits, and discussions th practicing photographers. Participants couraged to select their own special erests within the areas of photographic tory being presented. Assignments lude readings, research and projects. experience in photography necessary.

terpreting Classical Antiquities for ildren: How D'Ya Do, Homer? EDUC 490E

asics of classical Greek and Roman civi- ations for those who have not studied assical subjects and who are working ith youth. Includes specific suggestions r reading and studying in these areas. opics include: the classical tradition in assachusetts, 1978; Greek mythology; e **Iliad** and **Odyssey** of Homer; profile the Latin language; ancient classical nguages in English words; classical collec- ons in Massachusetts museums.

troduction to Problems in Language Development EDUC 490F

or classroom teachers and concerned lay- en, including parents, who would like to quire a basic understanding of normal nguage development and problems which impede this development. Focuses on assessment and description; touches on remediation techniques. Examines social and academic problems arising from impaired language development.

A Look at Latin
EDUC 590M

Exercises enabling students to carry out the role of formative evaluation in their school situations. Students receiving credit will conduct a local evaluation within specific broad guidelines and report the results. Instructor will provide feedback useful in making revisions so an acceptable final product can be produced. Using the new curriculum materials, each student receiving credit will design a pretest, post-test and other suitable instruments tailored to an evaluation of the materials in his particular teaching situation. Uses multidisciplinary curriculum material, **A Look At Latin.** Formative evaluation, both general and specific, is applied in this developmental effort. Instruction in various evaluation instruments: questionnaires, scales and others. Credit: 1.

Community: Its Implications for the Neighborhood EDUC 590O

The various organizational patterns of education that have evolved in the U.S. Community School Movement. Gives students insight into and knowledge of the community school concept. Emphasis on programmatic aspects and the process of opening a community school. History of community education; making a good school; inservice for teachers, administrators and community citizens; formulating curriculum innovations.

DIVISION OF HUMAN SERVICES AND APPLIED BEHAVIORAL SCIENCES

Introduction to Family Counseling
EDUC H 490N

Family systems training, based on Bowen Theory, theoretical terms of differentiation, fusion, triangulation and multigenerational transmission process. Students conduct three-generational research in their families to discover historical roots, to reconnect with extended family members, to become more knowledgeable about family process, to observe triangles and repetitive family patterns and to assess their own functioning within the system. Group discussions, video tapes, films, family sculpting and the use of the genogram to develop an awareness of self in relation to the system. Structural Family Counseling and Communication Theory.

Seminar in Curriculum Development for Early Childhood Education
EDUC H 575

Establishing goals in preschool and kindergarten programs; selecting and designing curricula to meet these goals. Attention to specific learning experiences in such areas as sensory motor growth, math, language and art education. Emphasis on the need to accommodate the child's affective and cognitive needs in all components of a program, recognizing the essential interdependence of all dimensions of a young child's growth. Ways in which classroom organization and parent relations affect curriculum goals.

DIVISION OF EDUCATIONAL POLICY, RESEARCH, AND ADMINISTRATION

Basic Concepts in Organizational Behavior And Management EDUC P 290B

For those interested in leading and managing the activities of others. Concepts and ideas which encourage answers to the following: Is it necessary for an administrator, manager or teacher to be a leader? Is there any one best leadership style? What styles can a leader use? What should a leader delegate and to whom? What kind of feedback should a leader delegate and to whom? What kind of feedback should a leader give followers? What does a leader need to know about followers, organization and leaders? Lectures, group discussions, readings and case studies explore delegation, decision making, group and organization dynamics, feedback on individual and group performance, human potential, leadership styles, situational leadership, organizational diagnosis.

Foundations of Education
EDUC P 351

Selected problems and issues in modern education studied through the discipline of educational sociology, educational history, educational philosophy, comparative education or social psychology. Independent study of field experiences optional. Possible foci are educational aims, societal expectations of the schools, church-state relations, professionalism, academic freedom, curriculum and methodological emphasis, urban education and educational innovation. Fulfills "Foundations" requirement for students seeking Teacher Certification.

Organization for Curriculum Development
EDUC P 665

Proceeds on two major assumptions: 1) the interaction between learners and teachers is guided by on-going curricular decisions; 2) understanding a model of curricular decision-making which can be adapted to daily classroom activity will improve teacher-learner interactions. Objectives are: to understand some persistent problems of curriculum and instruction; to develop a rationale for viewing curriculum and instructional problems; to interpret some basic concepts of curriculum and instruction; to develop sensitivity to the human relations problems involved in the construction and implementation of curriculum; to develop skill in applying basic concepts of curriculum and instruction to educational practice. Focuses on the development of basic knowledge of processes of rational curriculum development, including the relationship among objectives, instruction, organization, evaluation and on the problems and issues teachers face in developing curriculum. Can be taken to meet the Teacher Certification requirement.

ENGLISH

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Society and Literature (C)
ENGL 131 Palmer

Literature that deals with man's relationship to society. Topics may include: the utopian vision; the notion of the self; politics and literature. Readings may include works by Mailer, Sophocles, Austen, Thoreau, Marx.

Reading Fiction (C)
ENGL 140

Learn to read closely without butchering a story; become attuned to the vision underlying a work of fiction (how a particular writer experiences life). Reading of about two stories a week. Small discussion groups help the student respond actively to fiction.

Expository Writing
ENGL 150

A working knowledge of the fundamentals of American English prose: paragraphs, sentences and sub-sentence elements. Emphasis on the craft of communication, using these fundamentals as a base, and on the needs and expectations of the reader, the audience. Clarity of communication a minimum expectation; students should expect their writing to become interesting and compelling as well. Three class segments: lecture, writing and discussion directed at the problems and discoveries encountered during the writing.

Science Fiction and The Imagination (C)
ENGL 162

Examination of frequent themes in science fiction: mythic, social, philosophic. Emphasis on the diversity of approaches offered by science fiction. Readings include works by Clarke, LeGuin, Sturgeon, Lem, Stapledon.

Modern Drama (C)
ENGL 263

The development and evolution of the modern theater in the works of 15 dramatists. Critical reading in Robert Brustein's **The Theatre of Revolt**; the modern dramatic form as it emerges and is developed in Europe (Ibsen, Strindberg, Chekov, Shaw, Synge, Pirandello, Lorca, Brecht), and in America (O'Neill, Wilder, Williams, Miller). Contemporary trends built upon the early modern transformation (Beckett, Genet, Pinter).

Creative Writing
ENGL 354 Northampton

Introduction to writing fiction, poetry, drama, scripts. Participants read and criticize each other's work; instructor returns students' work with written comments. Outside reading suggested on an individual basis. Assigned and personally-motivated writing exercises. Stresses reworking manuscripts. Portfolio of finished work required.

Russian Culture

Introduction to modern Russian culture; the historical roots of contemporary Russian habits and ways of thinking.

Areas of history, social ideas, government, literature, art, architecture, cinema, education, in selected historical periods; emphasis on contemporary developments.

russ 250

ENTOMOLOGY

College of Food and Natural Resources
Dean Ross S. Whaley

Insects and Man (E)
ENT 226

The widespread effect of humanity's greatest competitors on human life and well-being. Among questions to be discussed are: Can Potato bugs read? Do the ugliest lady cockroaches become wallflowers? Which bugs taste best? Are insects sexier than humans? Is the only good bug a dead bug? Analysis of the social life of bees and termites, insects in medicine, mimicry and coloration, pollination, insect control techniques, and prest problems in urban and suburban life.

Insects in Science Education
ENT 590C

A "hands-on" course about the diverse types of insects, their relatives the arthropods, and how to utilize them as model biological systems in class as well as outdoor settings. Students rear, handle, and develop units using live insects. Discussions and activities on how insects can be used to produce integrated learning experiences with other subjects. Emphasis on preparing units, evaluating already-prepared commercial materials and seeing how insects are used in some of the major science improvement programs across the country. Primarily for upperclass and graduate students in pre-school, elementary and secondary education with an interest in science education.

EXERCISE SCIENCE

School of Physical Education
Dean David C. Bischoff

Nutrition and Human Performance
EXCSCI 210

Nutrition-human performance; focus on the wheat after it has become separated from the chaff. Underlying principles and concepts aimed at intelligent discussion relative to foodstuffs and human physical performance. Addresses popular misconceptions; separates fact from faddism.

FOOD SCIENCE & NUTRITION

College of Food and Natural Resources
Dean Ross S. Whaley

World Food Habits
FS & N 102

The historical origins, scientific bases and nutritional implications of current eating habits of humans throughout the world. Physiological and psychological factors, specific taboos, superstitions, prejudices, aversions, influence of modern production technology.

Current Topics in Nutrition in Health and Disease FS & N 490C

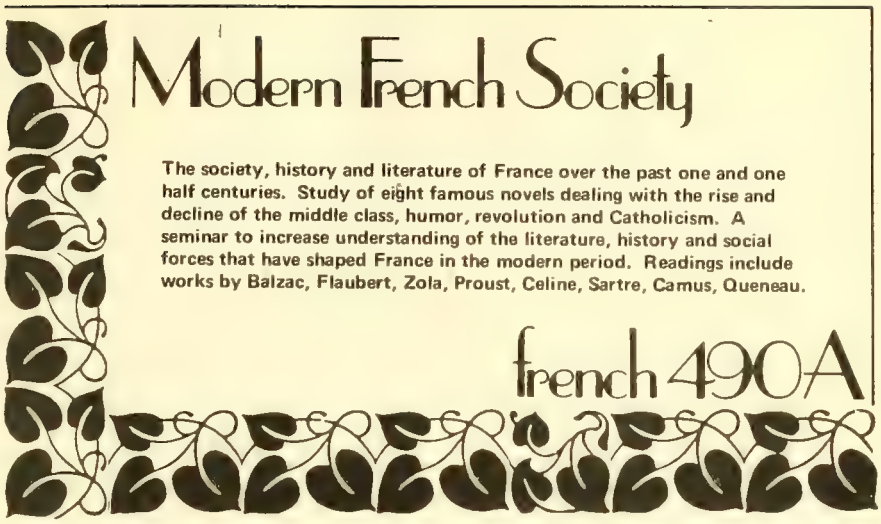
Current topics in nutrition of interest to the general public. The role of diet in both causing and preventing heart disease, diabetes mellitus, cancer and obesity. The pros and cons of breast feeding and a comparison of human and cow milk. The facts and myths of vitamin therapy, organic foods, vegetarian diets and reducing diets. Discussion of food additives and food labeling. Prerequisite: Some knowledge of biology.

ENCH

ulty of Humanities and Fine Arts
ing Dean Richard Noland

nentary French
FRENCH 110
those with no previous creditable train-n French. Intensive practice in the language skills.

ern French Society
FRENCH 490A Northampton
society, history and literature of ce over the past one and one half cen-s. Study of eight famous novels deal-with the rise and decline of the middle humor, revolution and Catholicism. minar to increase understanding of the ature, history and social forces that shaped France in the modern period. dings include works by Balzac, Flaubert, , Proust, Celine, Sartre, Camus, neau.



NERAL BUSINESS & NANCE

ool of Business Administration
ing Dean Jack S. Wolf

ninistrative Statistics
GB FIN 250
bability and statistical distributions ied to business management problems; lication of Bayes theorem to sampling usiness decision-making under uncer-ty.

oduction to Law
GB FIN 260
nature, function and limits of law. ous theoretical approaches to law as important institution in society. Selected blems of law, power and stratification the relationship of law and values in ety.

poration Finance
GB FIN 301-1
oduction to basic finance for people no finance background as well as se planning finance as a major. Finan-analysis and planning, working capital nagement, long-term funding, capital geting and valuation. Emphasis on a al-world" orientation with theoretical dels as appropriate.

poration Finance
GB FIN 301-2
porate financial behavior; appraisal of ors affecting decision-making regarding rces and application of funds; introduc-to capital budgeting and cost of capital blem. Prerequisite: ACCTG 221 or nission of instructor.

ciples of Insurance
GB FIN 330
s encountered by individuals and busi-firms. Methods and institutions to in-against financial losses. Various forms of insurance studied primarily from buyer's point of view.

GEOLOGY

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Geology and Man (E)
GEOL 105 Northampton
Evidence for selected mineral-forming processes; minerals in industry; developments in mineral research and technology; geologic considerations in such engineering works as mines, foundations, tunnels, waterways and airfields.

Introduction to Rocks and Minerals (E)
GEOL 110
Includes structure and composition of the earth, rock-forming minerals and the three classes of rocks (igneous, sedimentary and metamorphic), economically-important metallic ore minerals together with occurrences and associated minerals, minerals used for decorative purposes, semi-precious stones and precious stones. Laboratory work on recognition and identification of the above minerals.

GERMAN

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Elementary German
GERMAN 110
For those with no previous training in German. Emphasis on understanding and reading. Sequence to be followed: GERMAN 110, 120, 230, 240.

Contemporary German East and West (C)
GERMAN 190E
Political, economic and cultural aspects of the Federal Republic of Germany and the German Democratic Republic. Development of the two German states and their different social systems as reflected in literature, the arts, the media, education and religious life.

HISTORY

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

European History from 1815 to Present (C)
HIST 141
European history from the conclusion of the Napoleonic Wars to the Cold War; major political, economic and cultural trends. Topics include: the rise of industrialism and technology, the major 20th-century dictatorships, imperialism, the First World War, evolution in science and thought. Extensive use of film. Preference given to films which are either contemporary records or achieve an effective recreation of the past. Tentative choices: **Triumph of the Will, Ten Days That Shook the World, The Cranes Are Flying, To Die in Madrid, Children of Paradise.** Videotapes from "The Ascent of Man," "Civilization," and "Royal Heritage" may be included.

Development of American Civilization to 1876 (C) HIST 150 Palmer
Development of American civilization from Colonial days to the end of Reconstruction. Readings cover all aspects of American life during the period; lectures stress ideological, constitutional, economic and political developments. Evaluation of "The American Dream."

Research in Genealogy
HIST 297G
Fundamentals of gathering, evaluating and using genealogical data. Standard sources and repositories of such data, including

individuals, recollections, libraries, archives, historical societies and records offices. Introduction to the literature of published genealogies, local histories and related materials; to records of vital events and to other kinds of manuscript materials. Principles and problems of organizing genealogical research projects and data. Activities of genealogical societies. Emphasis on materials from 17th through 19th century New England, especially Massachusetts. Lab fee: $1, to offset the cost of additional books on genealogy for the University Library. Credit: 2.

Labor History (C)
HIST 400

History of the American working class under 20th century capitalism. Discussion of traditional historical concepts (industrialism, immigration and urbanization) for working class history. Focus on unionization and strikes, working-class consciousness and culture. How nativism, racism and sexism divide the working class; strategies used by the working class to avoid oppression and to gain power.

HOME ECONOMICS

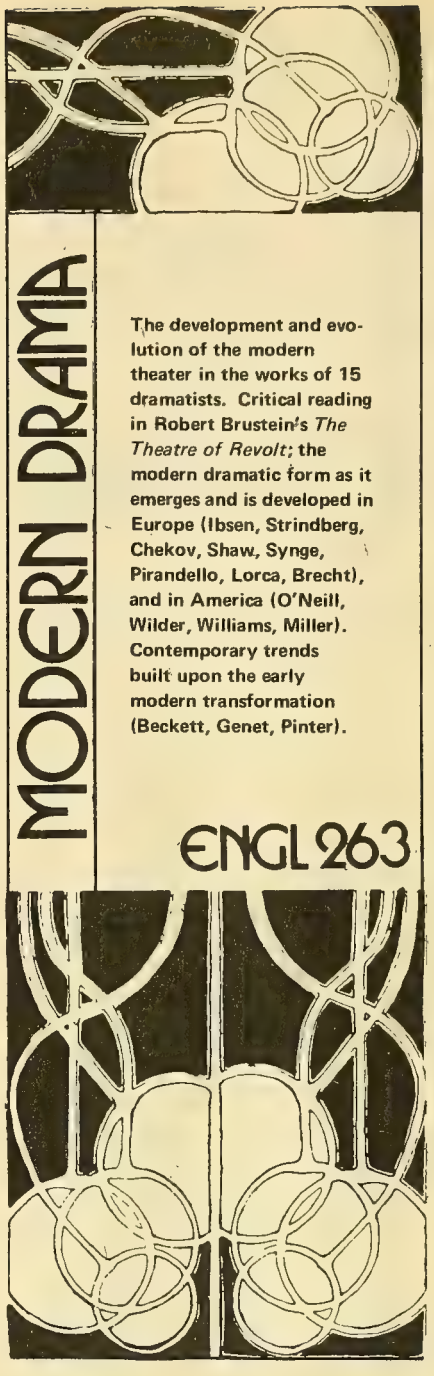
College of Food and Natural Resources
Dean Ross S. Whaley

Retail Merchandising
HOMEC 391A

For practicing and future retail managers whose performance is based on profit contribution. Quantitative approach in calculating mark-ups and mark-downs, inventory control, stock-turning, sales-forecasting open-to-buy, vendor negotiations and computerization.

Focus-Instruction for Special Needs Students at Secondary Level
HOMEC 590G

Assists home economics teachers with the instructional materials and methods appropriate to the special needs student at the secondary level. Includes: federal and state legislation, assessment of student needs, definition of objectives in the cognitive and psychomotor domain, selection of methods and materials for teaching, evaluation of student progress, evaluated programs, development of resource center and bibliography for special needs students.



HOTEL, RESTAURANT & TRAVEL ADMINISTRATION

College of Food and Natural Resources
Dean Ross S. Whaley

Food Service Management
HRTA 211

Lectures and discussions related to the management of both commercial and institutional food service operations. Presentations include: management by menu concept, site selection process, functional cycle of control (purchasing, receiving, storing, and issuing) and production forecasting and scheduling. Development of operational and financial food and beverage cost controls, including menu pricing, budgeting and internal/external sales analyses.

INDUSTRIAL ENGINEERING

School of Engineering
Dean Russel Jones

Safety Engineering
IE 560

Occupational health and safety for industrial engineers. Attention to Federal requirements of the Occupational Safety and Health Administration (OSHA). Not for graduate credit.

JOURNALISTIC STUDIES

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Editing Specialized Publications
JS 291S

Uses actual materials, specific assignments and defined problems in a case-study approach to editing actual publications. Editing and rewriting actual texts, from rough submissions to final galleys. Problems include: heavy vs. light editing (and how not to confuse this with crude vs. sensitive editing), editing to save the author's ego while killing the author's bias, editing or rewriting the same material for different audiences and editing for children. Other basic editing problems: sources, resources, reference works, main routes and shortcuts, house styles and manuals; the grammar and punctuation of copy-editing.

Photojournalism
JS 391Z

For working news photographers (or students who have been published) who want experience in news photography not offered by local publications. Consists of lectures, assignments and critiques. The lectures, including some presented by guest speakers, cover theory of photojournalism, marketing material, low-light photography, anticipation of events and "what is news." Final assignment is a magazine-type photo essay. Prerequisite: Published photographs.

LEGAL STUDIES

Special Programs
Special Assistant to the Provost
John Hunt

Introduction to Legal Studies
LEGAL 250

The purposes and functions of law in society. Legal reasoning and decision-making; the impact of law upon persons directly and indirectly involved with it; the relationship between political, social and economic power and law; the relationship of law and morality; and the problems of achieving justice in contemporary society.

Civil Rights of the Mentally Disabled
LEGAL 297M Holyoke

Examines leading case law and legislation affecting mentally disabled persons. Emphasis on federal and Massachusetts laws. Attention to: the right of the mentally disabled to an appropriate education, the right of the mentally disabled to treatment in the least restrictive setting, the right of mentally disabled persons to consent to treatment and the right to refuse treatment. The wide range of civil rights, normally taken for granted by citizens at large. Lectures, discussions; case-study method.

LINGUISTICS

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

People and Their Language (C)
LING 101

Aspects of human language: its origin and evolution; its relation to animal languages; the acquisition of languages; bilingualism; the relationships of language to society, including dialects, pidgins and creoles; sexism in language. Languages of the world, their similarities and differences. Topics may include the relationship of linguistics to other disciplines such as literature, mathematics, philosophy, computer science, psychology, neurology.

MATHEMATICS

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Algebraic Review
MATH 101—1, Amherst; 2, Northampton

Rapid review of manipulative algebra for precalculus students who have been out of school for some time or who have insufficient knowledge of secondary school mathematics. Note that 101/102/103 do *not* satisfy an E core requirement. Note that a student must register separately for each of the courses 101, 102, and 103. Registration for 101 does *not* automatically register the student for 102 or 103. Credit: 1.

Analytic Geometry with Elementary Function MATH 102—1, Amherst; 2, Northampton

Introduction to the function concept and some analytic geometry for precalculus students who have been out of school for some time or who have insufficient knowledge of secondary school mathematics. Prerequisite: Math 101 or equivalent. Credit: 1.

Precalculus Trigonometry
MATH 103—1, Amherst; 2, Northampton

Essential trigonometry for precalculus students who have not had modern trigonometry or who have insufficient knowledge of modern high school trigonometry. Prerequisite: MATH 102 or equivalent. Credit: 1.

Topics in Contemporary Math (E)
MATH 110

A survey of several specific topics designed to acquaint the student with the general nature of mathematics. Topics may include logic and sets, mathematical systems, calculus, probability, statistics, linear programming and game theory.

Mathematics for Business I (E)
MATH 120

Designed for School of Business Administration students. Analytic and linear mathematical methods and their applications to business. Derivatives, extrema and introduction to the integral. Credit not given after MATH 127 or 131. Prerequisite: high school algebra.

Calculus For The Life and Social Sciences (E)
MATH 127

Introduction to differential and integral calculus. Applications to the life and social sciences stressed. Credit given for only one of the courses MATH 120, 127, 131. Prerequisite: high school algebra.

MANAGEMENT

School of Business Administration
Acting Dean Jack S. Wolf

Principles of Management
MGT 301—1, Amherst; 2, Northampton

Introduction to the fundamentals of the management of organizations. Survey includes behavioral background of formal organizational life, organizational design, integrating factors in collective behavior, organizational change, systems analysis, techniques of decision-making and control, the organization and its environment and the nature of management theory.

Personnel Management
MGT 314

Principles and policies followed by management in recruitment, development, direction and control of personnel.

Managerial Behavior
MGT 330

Principles of human behavior in organizations: understanding of one's self as a person and as a manager; development of interpersonal managerial skills. Prerequisite: MGT 301.

Administrative Theory
MGT 331 Holyoke

Principles of administration, modern organization, functionalization, coordination, planning and control, authority status, leadership, decision-making, communication and power-structuring. Prerequisites: MGT 301, 330.

Production Management I
MGT 347

Basic principles of production management. Use of statistical, mathematical and simulation methods in production or operations.

MARKETING

School of Business Administration
Acting Dean Jack S. Wolf

Fundamentals of Marketing
MKTG 301

The role of marketing in our economic and social structure. The planning, distribution, pricing and promotion of goods and services to consumer and industrial markets.

Buyer Behavior
MKTG 410

Analysis of buyer motivation and buying behavior. Explanatory theories of consumer market behavior and models of the decision-making process for winning patronage. Prerequisite: MKTG 301 or permission of instructor.

Marketing Communications
MKTG 422

Development of effective marketing communication strategies based upon an understanding of the characteristics of audiences. Conceptual material from communications theory applied to advertising and other promotional problems. Prerequisite: MKTG 301, or permission of instructor.

MUSIC

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Appreciation: Introduction (C)
MUSIC 100

Introduction to the art of music listening. Music from 1600 to the present. Composers such as Bach, Vivaldi, Handel, Mozart, Haydn, Beethoven, Schubert, Brahms, Berlioz, Wagner, Ravel, Ibert, Debussy, Stravinsky, Bartok, Boulez. Musical training not required. Recognition of music by period (Baroque, Classic, Romantic, Impressionistic and 20th Century). Attention to the trumpet, with live demonstrations.

History of Jazz
MUSIC 103

Review of the inception and stylistic development of jazz. The African roots and Western European influences identified and experienced. Significant developments explored through listening to and discussing representative music examples and artists. Live performances and recorded examples. A theoretical knowledge of music is not assumed. Participants will take part in a number of creative experiences.

Instruction for Special Needs Students at the Secondary Level

Assists home economics teachers with the instructional materials and methods appropriate to the special needs student at the secondary level.

HOMEC 590G

FORESTRY & WILDLIFE

College of Food and Natural Resources
Dean Ross S. Whaley

Conservation of Natural Resources
NAREST 100

Conservation principles and their application to problems in soils, water, forests, wildlife, mineral and general landscape resources. Relationship of conservation to national development.

NURSING

School of Health Sciences
Dean William Darity

Elements of Pathophysiology Basic To Nursing NURSE 300

Defines and explores some elements of pathophysiology. Alterations in normal body function leading to disease and discomfort of the individual presented within an organizing framework. Selected elements include but are not limited to pain, immunological disorders, cellular proliferation, disordered fluid balance, destructive processes, sleep disorders. Directed towards improving the data base for clinical inferences with respect to pathophysiology and the assessment phase of the nursing process. Prerequisites: human anatomy and physiology, chemistry, enrollment limited to RNs and nursing students only.

Parenting Perspective
NURSE 490C Springfield

Exploration of parent and infant bonding and its effect upon parent-infant behavior. The process, patterns and determinants of bonding as well as the problems related to parent-child attachment. Variables that affect parent-child attachment including failure to thrive, child abuse and neglect. The role of the nurse in assessment of parental attachment and the identification of and intervention with high-risk parents and ineffective parenting.

PHILOSOPHY

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to Philosophy (C)
PHIL 100

The scope and exciting controversies of contemporary philosophy. Ideas raised by Socrates, Kant, Mill, Rousseau, Plato, Kierkegaard, Descartes, Leibniz, discussed currently as a result of interviewing deSates. Stresses issues in ethics, social and political philosophy, philosophy of art and philosophy of religion.

Introduction to Logic (E)
PHIL 110

The nature of critical thinking, including the functions of language, the structure of deductive arguments and a glimpse at inductive methods.

Ethics (C)
PHIL 160 Northampton

Introduction to fundamental questions of ethics through reading and discussion of modern authors. Emphasis on the principles by which moral decisions might be made and the status of our knowledge of those principles. Topics of contemporary moral concern considered in student papers.

PHYSICS

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Physics for Poets (E)
PHYSIC 100

An in-depth survey of and introduction to the basic concepts of modern and classical physics: mechanics, heat, light, sound, gravity, electricity, magnetism, atoms, nuclei, elementary particles, relativity, uncertainty, duality. Includes historical development and philosophical implications. Especially welcome are those who know nothing about physics. Knowledge of algebra helpful.

Nuclear Energy, Its Physics and Its Social Challenge (E) PHYSIC 117 Holyoke

Basic physical concepts clarifying the nature of atoms and nuclei; the workings, capabilities and possible perils of nuclear reactors and explosives; associated social, political and diplomatic problems and challenges. Prerequisite: high school algebra.

Physics for Life Science Majors I (E)
PHYSIC 141

For those who have a basic interest in the world around them and would like to deepen their understanding of why physical phenomena happen the way they do. Provides a thorough grounding in the basic principles of mechanics, heat, and sound (using algebra and trigonometry, but not calculus), with ample opportunity to observe nature's mysteries first hand in the laboratory. Prerequisites: high school algebra and trigonometry. Credit: 4. Laboratory included.

PLANT PATHOLOGY

College of Food and Natural Resources
Dean Ross S. Whaley

Plant Diseases and Their Control
PLPATH 100

The occurrence, importance, identification and control of diseases of plants grown for food and/or aesthetic value. Infectious agents (fungi, bacteria, viruses, mycoplasmas, nematodes) and environmental factors that cause diseases of plants in the home and garden.

PLANT & SOIL SCIENCES

College of Food and Natural Resources
Dean Ross S. Whaley

Basic Plant Science (E)
PLSOIL 100

Introduction to crop plant production. The sociological aspect of agriculture: the role of agriculture in cultural evolution, the need for food, energy and crop production, the Green Revolution and agriculture and pollution. The nature of crop plants: genetics and plant breeding, structure and function of crop plant parts, growth and development and mineral nutrition. Crop plants and their environment,

ncluding pests, light, heat, water, no-till griculture and allelopathy. Examples to lustrate the basic principles of crop rowth drawn from the major food crop lants. Prerequisite: Introductory Botany elpful.

loriculture Science
PLSOIL 125

he esthetic enrichment of the indoor en-ronment with plants. Emphasis on plant roups useful inside the home, stressing neir proper identification, propagation nd general cultural requirements. The echniques involved in creating indoor owering and foliage displays, hanging askets, dish gardens, mini-propagators, ght gardens and terrariums. Survey of epresentative flower crops applying to oral arrangements (fresh and dried) and ut flower care in the home. Students cquire practical experience in greenhouse rojects during lab sessions.

OLISH

aculty of Humanities and Fine Arts
cting Dean Richard Noland

pecial Topics: Conversational Polish
POLISH 197A Holyoke

troduction to the Polish language; em-hasis on speaking. Aspects of Polish ulture as reflected in the language. redit: 2.

troduction to Polish People (C)
POLISH 250 Palmer

survey of Polish civilization, empha-zing Polish history, the history of the oles in America, folk art and crafts, olk traditions, as well as refined arts.

OLITICAL SCIENCE

aculty of Social and Behavioral Sciences
cting Dean T. O. Wilkinson

merican Politics (D)
POLSCI 101

troduction to various interpretations of merican politics. Examination of com-ting theories of power in contemporary merica and different arguments several olitical scientists have given to explain no has power and why. Focus on the in-tutions of government (Congress, the esidency, the courts) as well as work life d the environment. Exploration of ntral questions: What do we mean when e say that someone or something has wer? How is political power different om social and economic power? How do fferent accounts of power square with r ideal of democracy? What does being ood citizen involve and why?

Problems in Contemporary Politics: The Politics of Crisis in the Public Sector (D) POLSCI 131 Northampton

A forum in which public service workers of all kinds (in education, health, welfare, child care, community development, housing, women's projects, public safety) and community members (students, home owners/taxpayers, community activists, parents) can share their experiences on the job and their concerns about how well community needs are being met since the fiscal crisis of the 1970s. Exploration of the daily situations which confront us personally accompanied by background reading on the fundamental nature of our political and economic system, and readings and speakers focused on the nature of public service work, the sources of the fiscal crisis and the political alternatives for change facing us. The binds in which public workers are caught and the inner ambivalence many feel due to the pressure to serve the often conflicting purposes set forth by administrators and supervisors, union leadership, clients and outspoken advocacy groups, the tax-paying public and state government officials, professional training institutions and associations, and the expectations of our families and friends.

Problems in Contemporary Politics: Political Misbehavior (D) POLSCI 141A Holyoke

The sources of corrupt or illegal acts in our political system. Asks what particular groups might benefit from regular abuses of political power? Examination of big-city governments, recent political assassinations, Watergate and the CIA.

PSYCHOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Elementary Psychology (D)
PSYCH 100 Northampton

An introduction to the basic approaches and concepts of modern psychology. Examples from the areas of perception, conditioning, cognitive processes, social behavior, tests and measurements and personality.

Psychology as a Natural Science (D)
PSYCH 110

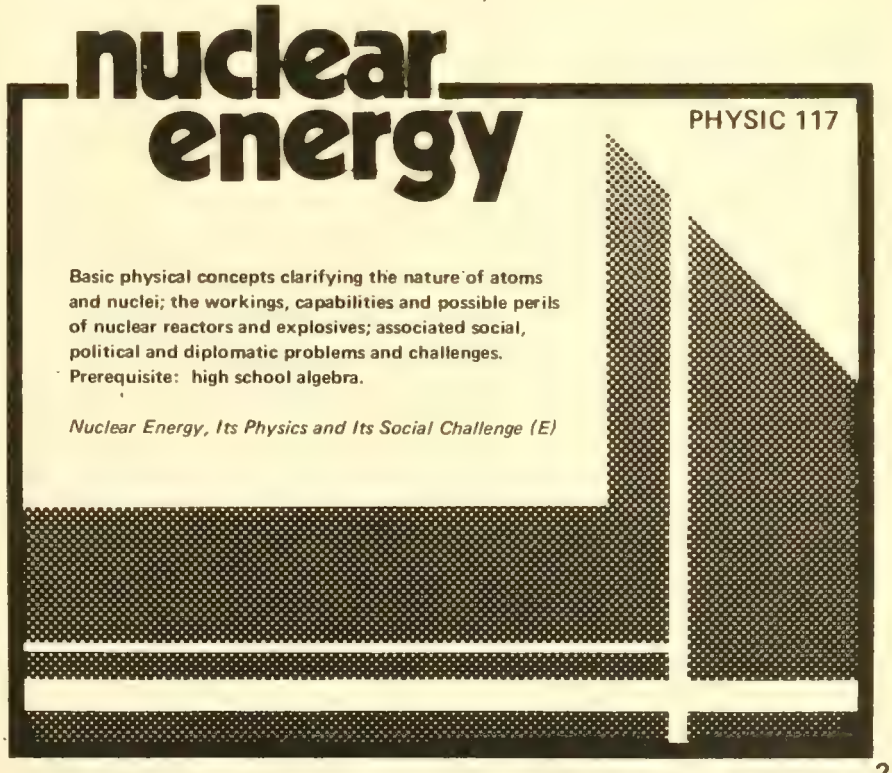
Introduction to psychology including those fields concerned with a natural science approach to the study of behavior. Emphasis on the scientific method, biological determinants and bases of sensation, perception and learning, comparative and evolutionary perspectives on behavior and the role of early experience and language in human behavior.

Educational Psychology (D)
PSYCH 205

Psychological facts and principles of development, learning and measurement as applied to educational situations. Prerequisite: PSYCH 100 or PSYCH 150.

Organizational Psychology (D)
PSYCH 206

Introductory conceptions of schools, hospitals, prisons, industries and other organizations as complex social systems; individual adaptation in organizational settings; or-



ganizational development and personal change. Prerequisite: PSYCH 100 or PSYCH 150.

Statistics in Psychology
PSYCH 240

Introduction to statistical principles and techniques as applied to psychological data. Prerequisite: knowledge of basic algebra.

Abnormal Psychology (D)
PSYCH 280 Palmer

Abnormal behavior including major psychological disorders. Emphasis on various contemporary approaches to their understanding and treatment. Prerequisite: PSYCH 100 or PSYCH 150.

Sensation and Perception (D)
PSYCH 310

Methods, data and theories of the functioning of various sensory systems. Topics include a survey of basic sensory processes in the cutaneous senses, audition, vision, gustation and olfaction; and higher perceptual processes in selected senses. Prerequisite: PSYCH 110.

Learning and Thinking (D)
PSYCH 320 Holyoke

A general survey of animal and human learning and performance. Topics include: factors affecting acquisition, generalization, discrimination, extinction and transfer in animals and humans, memory and higher cognitive processes in humans. Prerequisite: PSYCH 110.

Child Behavior and Development (D)
PSYCH 350

Psychological development of the child, including theories, methods, and data of child behavior studies. Prerequisite: PSYCH 100 or PSYCH 150.

Psychology of Adolescence (D)
PSYCH 355

The development and emotional, social and intellectual adjustment of the individual during adolescence. Prerequisite: PSYCH 100 or PSYCH 150.

Social Psychology (D)
PSYCH 360 Holyoke

Introduction to the principles and study of social behavior. The psychological factors involved in attitude formation and change, communication and persuasion and small group processes. Prerequisite: PSYCH 100 or PSYCH 150.

RHETORIC

Special Programs
Special Assistant to the Provost
John Hunt

Language and Writing—Integrated Skills I (B) RHET 100C

First semester of a year sequence; practice in both writing and speaking. Emphasis on the relationship of clear, orderly thought to effective communication. Materials designed to introduce the elements of critical analysis. Contemporary issues in all areas constitute the subject matter. Required for Business majors.

Language and Speaking—Elements of Public Speaking (B)
RHET 110A

Focuses on improvement of skills in interpersonal and public communication situations. Primary concerns are selection, arrangement and development of ideas and materials for oral communication; the use of language for conveying meaning, thinking, reasoning, problem solving and decision making; analysis of audience attitudes and beliefs; identification of purpose and assessment of effects of communication; ethical considerations in influencing others; and evaluation of one's own and others' public messages.

Writing About Imaginative Literature (B)
RHET 140

Emphasis on the ability to communicate in writing about response to literature, most often in the form of a conventional essay. Material includes modern works of fiction and poetry; contemporary song lyrics and current experimental fiction.

RUSSIAN

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Russian Culture (C)
RUSS 250

Introduction to modern Russian culture; the historical roots of contemporary Russian habits and ways of thinking. Areas of history, social ideas, government, literature, art, architecture, cinema, education, in selected historical periods; emphasis on contemporary developments.

SOCIOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Age, Sex, and Kinship in Contemporary Society (D) SOCIOL 102

Introduction to sociology with reference to problems of growing up and growing old in the contemporary family. Ranges from problems of youth and maturation to old age and sociology of death. Problems of sex roles; discussion of wide variety of sexual relationships.

Social Problems (D)
SOCIOL 103 Palmer

Distribution and interrelationships among some types of deviance and disorganization; crime, mental disorders, addiction, suicide, family tension. Theories of causation; research projects.

The Family (D)
SOCIOL 222

Development of customs of courtship and marriage and contemporary family. Basic causes of changes and trends of the family.

Criminology (D)
SOCIOL 241 Northampton

Nature of crimes and factors underlying criminal behavior. Machinery of justice: law, courts, police systems and correctional institutions.

SPANISH

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Elementary Spanish
SPAN 110—1, Amherst; 2, Palmer

For students with no previous creditable training in Spanish. Intensive practice in language skills. To fulfill the language requirement, upon completion of the course most students are required to continue by taking SPAN 130, 140.

Oral Spanish
SPAN 180

Pronunciation, vocabulary building, speeches, discussions, debates. Grammatical elements required for correct and fluent use of American and Peninsular Spanish. Prerequisite: SPAN 140 or permission of depart ment.

STATISTICS

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Elementary Statistics (E)
STATIS 121

Selected topics in elementary probability and statistics: discrete models for chance experiments, conditional probabilities; "odds" and betting schemes, combinatorics, averages and standard deviation, random sampling, binomial and normal distributions, regression, statistical inference, chi square test. Students who intended to use statistics as a research tool, but who do not have a calculus background, should elect STATIS 431, 432. Students with calculus background should elect STATIS 415, 416.

WOMEN'S STUDIES

Special Programs
Special Assistant to the Provost
John Hunt

So You Think You Can't Write!
WOST 191A

Skills approach to personal, practical and professional writing problems and issues, geared to lessening fears and increasing confidence. Emphasis on improvement in a supportive context, combining effective concerns with technical assistance. Particular emphasis on women's writing.

ZOOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Introductory Zoology (E)
ZOOL 101

Zoological areas of interest to humans personally and collectively including certain aspects of anatomy, physiology, inheritance, evolution, behavior and ecology. Laboratory included.

Day/Location Guide

All courses meet in Amherst unless otherwise designated.

KEY: **(N)** - Northampton
(H) - Holyoke
(P) - Palmer
(S) - Springfield

MONDAY

ANTH 102/Intro To Archaeology
ART 102/Basic Design I
ASIANS 197B/Sp Tpc: Ind/Tib Log
ASIANS 197D/Sp Tpc: Elem Tibetan
ASIANS 297D/Sp Tpc: Int Tibetan
ASTRON 100/Exploring Universe
BGS 320/Contm Prac Correctn **(N)**
COINS 122/Intr Prb Solv W/Comp
COMSTU 250/Interpersonal Comm
EDUC 490F/Intro Prob Lang Dev
ENGL 131/Society and Lit **(P)**
ENGL 162/Sci Fic & Imagination
FRENCH 110/Elementary French
FS & N 490C/Tpc: Nutr HI & Disease
GB FIN 250/Administrative Stat
GB FIN 330/Prin of Insurance
GEOL 110/Rocks & Minerals
GERMAN 110/Elementary German
HIST 297G/Sp Tpc: Res/Gneolgy
HOM EC 391A/Sem: Retail Mrchdsng
LING 101/People & Their Language
MATH 101/Algebraic Review
MATH 101/Algebraic Review **(N)**
MATH 102/Anal Geom/Elem Func
MATH 102/Anal Geom/Elem Func **(N)**
MATH 103/Precalc Trig
MATH 103/Precalc Trig **(N)**
MATH 120/Math for Business I
MGT 331/Admin Theory **(H)**
MKTG 301/Fund of Mktg
MUSIC 103/History of Jazz
NURSE 300/Pathophysiology
NURSE 490C/Parenting Perspect **(S)**
PHIL 100/Intro to Phil
PHYSIC 100/Physics for Poets
PLPATH 100/Plant Dis & Control
POLISH 250/Intro to Polish Ppl **(P)**
POLSCI 101/American Politics
PSYCH 100/Elementary Psych **(N)**
PSYCH 360/Social Psychology **(H)**
SOCIOL 103/Social Problems **(P)**
SOCIOL 241/Criminology **(N)**
SPAN 180/Oral Spanish I
STATIS 121/Elem Statistics
WOST 191A/Sem: So Thnk Cnt Writ

TUESDAY

ACCTG 222/Intro to Acctg II
ACCTG 311/Bus Appl of Comp
ANTH 104/Intro Cultural Anth
ART 100/Basic Drawing
ART 220/Painting I
ARTHIS 115/Intro to Visual Arts
BA 497/Bus Policy & Strat
BGS 321/Crim Jus Study Victm
BGS 332/Fund/Fire Prot Engin
COMSTU 331/Program Proc in TV
CONTED 0505/Cataloging & Classif
CONTED 0528/Media & The Library
ECON 104/Intro to Macroecon **(N)**
ECON 203/Intermed Microec Th
EDUC 490E/Interp Clscl Antq Ch
EDUC 590M/Form Eval/Look Latin
EDUC P 351/Foundations of Educ
EDUC P 665/Org For Curric Devel
ENGL 263/Mod Brit & Am Drama
ENGL 354/Creative Writing **(N)**
ENT 590C/Insect & Science Ed
FRENCH 490A/Mod Fr Soc **(N)**
HIST 400/Amer Labor Hist
HOMEC 590G/Inst: Sp Stu Sec Lev
JS 391Z/Sem: Photojournalism
MATH 110/Tpcs in Contemp Math
MATH 127/Calc Life-Soc Sci I
MGT 314/Personnel Management
MKTG 422/Mktg Communications
PHIL 160/Intro to Ethics **(N)**
PHYSIC 117/Nuclear Energy **(H)**
PHYSIC 141 (LEC)/Phys-Life Sci Maj I
PLSOIL 100/Basic Plant Science
PSYCH 205/Educational Psych
PSYCH 206/Organizational Psych
PSYCH 310/Sensation & Percep
RHET 140/Rhet of Imag Writ
ZOOL 101 (LAB)/Intro Zoology

WEDNESDAY

ACCTG 321/Finan Rptg I
ART 102/Basic Design I
ASIANS 197C/Sp Tpc: Chns Rel Tht
ASIANS 197D/Sp Tpc: Elem Tibetan
ASIANS 297D/Sp Tpc: Int Tibetan
BA 210/Intro to Bus Comp
BGS 200/Des/Const Sch Play
BOTANY 101/General Botany **(N)**
COMLIT 110/Myth, Folk & Child Lit
COMSTU 121/Intro to Mass Comm
EDUC 290K/Transactional Analys
EDUC H 490N/Intro to Family Couns
EDUC H 575/Sem: Curic Dev in ECE
FRENCH 110/Elementary French
FS & N 102/World Food Habits
GB FIN 260/Intro to Law
GEOL 105/Geology and Man **(N)**
GERMAN 110/Elementary German
HIST 141/Eur Hist 1815-Present
IE 560/Safety Engineering
JS 291S/Sem-Edtg Spec Pub
LEGAL 297M/Sp Tpc: Rts/Mntly Ill **(H)**
MATH 101/Algebraic Review
MATH 101/Algebraic Review **(N)**
MATH 102/Anal Geom/Elem Func
MATH 102/Anal Geom/Elem Func **(N)**
MATH 103/Precalc Trig
MATH 103/Precalc Trig **(N)**
MATH 120/Math for Business I
MGT 330/Managerial Behavior
MUSIC 100/Appreciation: Intro
PHIL 110/Intro to Logic
POLSCI 141A/Prob-Contemp Politics **(H)**
PSYCH 240/Statistics in Psych
PSYCH 355/Adolescent Psych
RUSS 250/Russian Culture
SOCIOL 222/The Family
STATIS 121/Elem Statistics

THURSDAY

ACCTG 221/Intro to Acctg I
ART 100/Basic Drawing
ART 220/Painting I
COMLIT 312/Mystical Lit E & W **(H)**
COMSTU 260/Adv Public Speaking
ECON 103/Intro to Microecon
EDUC 290L/Hist of Photography
EDUC 590O/Comm-Impl Neighborhd
ENGL 140/Reading Fiction
ENT 226/Insects and Man
EXCSCI 210/Nutrition & Hum Perf
GB FIN 301/Corporation Finance
GERMAN 190E/Contm Germ East/West
HIST 150/Dev Amer Civ to 1876 **(P)**
HRTA 211/Food Service Mgmt
LEGAL 250/Intro Legal Studies
MATH 110/Tpcs in Contemp Math
MATH 127/Calc Life-Soc Sci I
MGT 301/Principles of Mgt
MGT 301/Principles of Mgt **(N)**
MGT 347/Production Mgt I
MKTG 410/Buyer Behavior
NAREST 100/Conserv of Natrl Res
PHYSIC 141 (LAB)/Phys-Life Sci Maj I
PLSOIL 125/Floricultural Sci
POLISH 197A/Sp Tpc-Convs Polish **(H)**
POLSCI 131/Prob-Amer Politics **(N)**
PSYCH 110/Psych as Nat Sci
PSYCH 280/Abnormal Psych **(P)**
RHET 100C/Rhet of Lang & Wr
SOCIOL 102/Age, Sex, Knshp in Soc
SPAN 110/Elem Span I
SPAN 110/Elem Span I **(P)**
ZOOL 101 (LEC)/Intro Zoology

FRIDAY

ASIANS 197D/Sp Tpc-Elem Tibetan
ASIANS 297D/Sp Tpc-Int Tibetan
PSYCH 320/Learn & Think **(H)**

SATURDAY

ART 100/Basic Drawing
BGS 322/Const Iss/Crim Just
COINS 122/Intr Prb Solv W/Comp
COMSTU 226/Mass Med in Society
ENGL 150/Expository Writing
GB FIN 301/Corporation Finance
PSYCH 350/Child Behav & Devel
RHET 110A/Language & Speaking

DIVISION OF CONTINUING EDUCATION-UNIVERSITY OF MASSACHUSETTS/AMHERST

Name CZ-A05 — LAST NAME | FIRST NAME | INITIAL

Home Address BA1 — NUMBER & STREET

CITY | STATE | ZIP CODE

Home Tel. — Area Code | If No Phone, Write "None" | Country of Citizenship (other than U.S.)

Local Address (if different from home) BA2 — NUMBER & STREET | Phone Number

CITY

STATE | ZIP CODE

Have you ever registered for a course in the Division of Continuing Education?

☐ No ☐ Yes When? _____ month/year

STUDENT NUMBER

STUDENT PLEASE CODE BOXES APPROPRIATELY

Please note that this information does not influence the fee schedule.

☐ 'G' - Graduate 'U' - Undergrad

F K ☐ 'M' - Male 'F' - Female

☐ 'S' - Single 'M' - Married 'D' - Divorced 'W' - Widowed

☐ 'N' - Non-Vet 'V' - Other Vet

☐ 'M' - Mass. Res. 'O' - Other State 'F' - Foreign

☐☐ 'CT' - Citizen 'UN' - Not Citizen

BIRTHDATE ☐☐ month ☐☐ day ☐☐ year

Social Security Number

Schedule Number	Department	Course Number	Section	Course Title	Number of Credits	Course Fee DO NOT INCLUDE LAB FEES
						$
						$
						$
						$

OFFICE USE ONLY

AE 78-4

Total Amount Due $ .....

Amount Received $ .....

Check ☐ No. .....

Cash ☐ Credit Card ☐

Received By .....

Date Received .....

Comments:

NOTE:

DO NOT INCLUDE LAB FEES with registration payment; lab fees are assessed after classes begin.

FULL PAYMENT MUST ACCOMPANY MAIL REGISTRATION. Make checks payable to: Division of Continuing Education, AE 78-4.

Mail registration form and payment to:
Academic Extension
Division of Continuing Education
University of Massachusetts
Amherst MA 01003

CREDIT CARD PAYMENT

Please bill my:

☐ AMERICAN EXPRESS ☐ master charge ☐ VISA

Master Charge Bank No. _____

Expiration Date _____

Credit Card Number / / / / / / / / / / / / / / / /

Signature _____

TOTAL COURSE FEES		$
REGISTRATION FEE		$
OPTIONAL FEES		
Fine Arts Fee	$ 3.00	$
Health Service	$58.50	$
Insurance Fee	$67.00	$
Student Activities Fee	$35.50	$
TOTAL AMOUNT DUE AND ENCLOSED		$

CREDIT-FREE WORKSHOPS - REGISTRATION - FALL 1978

DIVISION OF CONTINUING EDUCATION - UNIVERSITY OF MASSACHUSETTS/AMHERST

The following information must be provided before your application can be processed.

Name Mr Ms FIRST NAME INITIAL LAST NAME

Address NUMBER STREET

CITY STATE ZIP CODE

Phone No. Area Code If No Phone, Write "None" Work Phone Area Code If No Phone, Write "None"

OPTIONAL: Your answers to these questions will guide us in planning future workshops. The information will be confidential if you choose to answer.

1. How did you find out about these workshops? _____
2. What other workshops would you like to have offered? _____
3. Occupation: _____ Full time ☐ Part time ☐
4. Are you a student? ____ Full time ☐ Part time ☐
   Where? _____
5. Have you taken a CE workshop before? _____

Marital Status _____ Age _____ ☐ Female ☐ Male

1. Workshop No. ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time _____ Date: _____ Fee: _____

**Alternative Choice No.* ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time: _____ Date: _____ Fee: _____

2. Workshop No. ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time _____ Date: _____ Fee: _____

**Alternative Choice No.* ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time: _____ Date: _____ Fee: _____

3. Workshop No. ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time: _____ Date: _____ Fee: _____

**Alternative Choice No.* ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time: _____ Date: _____ Fee: _____

4. Workshop No. ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time: _____ Date: _____ Fee: _____

** Alternative Choice No.* ☐☐☐☐ Title: _____
Section No. ☐ Day: _____ Time: _____ Date: _____ Fee: _____

Alternative Choice—In the event of cancellation or overenrollment, your second choice.

FULL PAYMENT MUST ACCOMPANY MAIL REGISTRATION

Make checks payable to: **Division of Continuing Education, AE 78-8**

Send to: **Credit-Free Workshops, AE 78-8**
Division of Continuing Education
University of Massachusetts
Amherst MA 01003

TOTAL WORKSHOP FEES $ _____

TOTAL AMOUNT DUE AND ENCLOSED $ _____

OFFICE USE ONLY
AE 78-8

Total Amount Due $ . . . . ☐ Cash
Amount Received $ . . . . . ☐ Check No. . . . . .
Received By . . . . . ☐ Credit Card
Date Received . . . . . ☐ S.C.F.W.
Comments

CREDIT CARD PAYMENT
Please bill my:

☐ AMERICAN EXPRESS ☐ master charge ☐ VISA

Master Charge Bank No. _____

Expiration Date _____

Credit Card Number / / / / / / / / / / / / / / / /

Signature _____

Bachelor of General Studies

The BGS Degree

The Bachelor of General Studies (BGS) is a University of Massachusetts degree available to part-time, non-traditional students through the Division of Continuing Education. The BGS is designed to be flexible and responsive to special needs that cannot be met in regular University degree programs. It requires considerable initiative and self-knowledge on the part of the student, and offers someone with firmly established goals a chance to take an active part in planning his or her program. The BGS degree has been used advantageously by three different groups of Continuing Education students: 1) those who would like to orient their degree more specifically toward a career area that demands interdisciplinary study; 2) those who are already established in a career but would like the benefits of a general liberal arts degree; 3) those who are looking for a specific match of disciplines, for example, philosophy and art, or organizations and human behavior.

The Continuing Education advising staff and faculty advisors chosen by the student can aid in the design of the BGS area of concentration, which is usually 30 credits of junior-senior level college or university work, at least 15 of which must be UMass credits. This designed degree, expressed as a list of courses and a thorough written justification in the BGS Proposal, will be judged both by the faculty advisor and the BGS Program Committee of Continuing Education.

A maximum of 75 semester credits from accredited colleges and/or universities may be used in the required 120 credits needed for graduation with a BGS. Other credits included in the transfer total may be those earned through the College Level Examination Program (CLEP) tests, or credits for certain types of training in the U.S. military service. Graduates must maintain a grade-point average of at least 2.0 on a 4.0 scale and fulfill the University core requirements. To ensure good program design and thorough advising, BGS candidates who came from previous full-time study at UMass/Amherst will ordinarily complete at least 15 credits of their BGS concentration in part-time study with the Division of Continuing Education.

The Continuing Education advising staff recognizes the difficulties inherent in creating and justifying an ambitious and original course of study. We encourage students, whatever the stage of their planning, to discuss their ideas for a BGS degree with a Continuing Education advisor.

BGS Areas of Concentration

Three structured BGS options presently exist. Criminal Justice and Fire Science build upon related Associate Degrees, while the Liberal Studies option satisfies the 30 credit "area of concentration" requirement.

BGS Criminal Justice

The BGS in Criminal Justice is designed to build upon the Associate's degree in Law Enforcement (or its equivalent in appropriate course work) from the community colleges. People working in the criminal justice professions, and those considering such careers, should find this degree flexible enough to meet their special needs as part-time students and their particular goals in criminal justice studies. This cooperative effort between UMass/Amherst and the community colleges is intended to produce highly competent officers for the police, courts and corrections institutions of the Commonwealth. No BGS Proposal is required, but interested students should ask for the complete Criminal Justice information sheet available from Student Services, Room 109, Hasbrouck, (413) 545-3430.

BGS Fire Science

The BGS in Fire Science is designed to build upon the Associate's degree in Fire Science Technology (or its equivalent in appropriate course work) from the community colleges. Firefighters in both public and private agencies, and people considering such careers may choose one of three possible career tracks: Fire Science Administration, Fire Science Education and Fire Science Technology. There is considerable flexibility within the requirements of each track allowing student and advisor to plan a program tailored to specific needs and interests. This cooperative effort between UMass/Amherst and the community colleges is intended to produce highly competent professional firefighters for the Commonwealth. No BGS Proposal is required, but interested students should ask for the complete Fire Science information sheet available from Student Services, Room 109, Hasbrouck, (413) 545-3430.

BGS Liberal Studies

The Liberal Studies option offers part-time students an opportunity to take specially designed offerings in the humanities, social sciences and natural sciences taught by outstanding professors and presented at times and locations specifically selected to accommodate the pre-established schedules of adults.

The Liberal Studies option was developed for mature men and women who recognize the value of a broad, multidisciplinary path to knowledge and understanding. Each course offered under this program is chosen to enhance cultural sensitivity, develop an understanding of the past and encourage personal growth.

Ten courses (30 semester credits) taken at the students' convenience will satisfy the BGS "area of concentration" requirement or may stand independently as a Certificate of Liberal Studies. In all respects, a candidate for a BGS degree must fulfill the requirements listed above. Degree plans should be discussed as early as possible with a Continuing Education advisor.

For a complete list of BGS courses offered this semester, see the **Course Descriptions** section, page 13.

Schedule of Courses

All courses in this schedule are listed alphabetically by departmental abbreviation and should be read as follows:

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE LOCATION	CREDIT
ART	220* 1	861503	PAINTING I TUTH 19.00-22.00	C FAC 445	3CR

LAB FEES, where applicable, are listed immediately under Title' in the following schedule.

Note: Please refer to the key below to decipher off-campus abbreviations appearing under 'Location.'

HLYK—Holyoke Community College, Holyoke
NHAM—Hawley Junior High School, Northampton
PALM—Pathfinder Regional High School, Palmer
SPFLD—Springfield Public Library, Springfield

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE LOCATION	CREDIT
A-C-C-O-U-N-T-I-N-G					
ACCTG	221		INTRO TO ACCTG I		3CR
	1	860036	TH 19.00-22.00	SBA	1
ACCTG	222		INTRO TO ACCTG II		3CR
	1	860214	TU 19.00-22.00	SBA	1
ACCTG	311		BUS APPL OF COMP		3CR
	1	860395	TU 19.00-22.00	SBA	4A
ACCTG	321		FINAN RPTG I		3CR
	1	860573	W 19.00-22.00	SBA	1
A-N-T-H-R-O-P-O-L-O-G-Y					
ANTH	102		INTRO TO ARCHAEOLOGY C		3CR
	1	860751	M 19.00-22.00	MACH	E-16
ANTH	104		INTRO CULTURAL ANTH D		3CR
	1	860939	TU 19.00-22.00	MACH	E-16
A-R-T					
ART	100		BASIC DRAWING C		3CR
	1	861113	TUTH 19.00-22.00	FAC	431
	2	861147	S 9.05-3.30	FAC	442
ART	102		BASIC DESIGN I C		3CR
	1	861325	MW 19.00-22.00	FAC	443
ART	220		PAINTING I C		3CR
	1	861503	TUTH 19.00-22.00	FAC	445
A-R-T H-I-S-T-O-R-Y					
ARTHIS	115		INTRO TO VISUAL ARTS C		3CR
	1	861684	TU 19.00-22.00	BART	219
A-S-I-A-N S-T-U-D-I-E-S					
ASIAN	197B		SP TPC-IND/TIB LOG		3CR
	91		M 1:00-3:00	*Location to be announced*	
ASIAN	197C		SP TPC-CHNS REL THT		3CR
	91		W 1:00-3:00	*Location to be announced*	
ASIAN	197D		SP TPC-ELEM TIBETAN		3CR
	91		MWF 9:00-10:00	*Location to be announced*	
ASIAN	297D		SP TPC-INT TIBETAN		3CR
	91		MWF 10:00-11:00	*Location to be announced*	
A-S-T-R-O-N-O-M-Y					
ASTRON	100		EXPLORING UNIVERSE E		3CR
	1	861862	M 19.00-22.00	GTWR	115
B-U-S-I-N-E-S-S A-D-M-I-N-I-S-T-R-A-T-I-O-N					
BA	210		INTRO TO BUS COMP LAB FEE$17		3CR
	1	862046	W 19.00-22.00	SBA	105
BA	497		BUS POLICY & STRAT		3CR
	1	862224	TU 19.00-22.00	SBA	105
B-A-C-H-E-L-O-R O-F G-E-N-E-R-A-L S-T-U-D-I-E-S					
BGS	200		DES/CONST SCH PLAY		4CR
LEC 1			W 19:00-22:00		
LAB 1			BY ARRGT		
BGS	320		CONTM PRAC CORRECTN		3CR
	1	862402	M 18.30-21.30	NHAM	JH
BGS	321		CRIM JUS STDY-VICTM		3CR
	1	862583	TU 19.00-22.00	GTWR	113
BGS	322		CONST ISS/CRIM JUST		3CR
	1	862741	S 9.05-12.05	GTWR	111
BGS	332		FUND/FIRE PROT ENGIN		3CR
	1	862949	TU 19.00-22.00	GTWR	119
B-O-T-A-N-Y					
BOTANY	101		GENERAL BOTANY E		3CR
	1	863123	W 18.30-21.30	NHAM	JH
C-O-M-P-U-T-E-R S-C-I-E-N-C-E I-N-F-O-R-M-A-T-I-O-N S-Y-S-T-E-M-S					
COINS	122		INTR PRB SOLV W/COMP LAB FEE$10	E	4CR
LEC	1A	863301	M 19.00-22.00	GRES	208
	2B	863335	S 9.05-12.05	GRES	208
LAB	1A	863369	BY ARRGT		
	2B	863393	BY ARRGT		
C-O-M-P-A-R-A-T-I-V-E L-I-T-E-R-A-T-U-R-E					
COMLIT	110		MYTH,FOLK&CHILD LIT C		3CR
	1	863571	W 19.00-22.00	MACH	W-25
COMLIT	312		MYSTICAL LIT E&W C		3CR
	1	863759	TH 19.00-22.00	HLYK	CC

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
C-O-M-M-U-N-I-C-A-T-I-O-N S-T-U-D-I-E-S					
COMSTU	121		INTRO TO MASS COMM	D	3CR
	1	863937 W 19.00-22.00		MACH	E-35
COMSTU	226		MASS MED IN SOCIETY	D	3CR
	1	864111 S 9.05-12.05		GTWR	113
COMSTU	250		INTERPERSONAL COMM	C	3CR
	1	864292 M 19.00-22.00		MACH	W-22
COMSTU	260		ADV PUBLIC SPEAKING		3CR
	1	864470 TH 19.00-22.00		MACH	W-22
COMSTU	331		PROGRAM PROC IN TV		3CR
	1	864650 TU 19.00-22.00		SC	120
C-O-N-T-I-N-U-I-N-G E-D-U-C-A-T-I-O-N					
CONTED	0505		CATALOGING & CLASSIF		3CR
	1	864835 TU 19.00-21.30		GTWR	111
CONTED	0528		MEDIA & THE LIBRARY		3CR
	1	865010 TU 4.00-18.30		GTWR	119
E-C-O-N-O-M-I-C-S					
ECON	103		INTRO TO MICROECON	D	3CR
	1	865191 TH 19.00-22.00		MACH	W-17
ECON	104		INTRO TO MACROECON	D	3CR
	1	865379 TU 18.30-21.30		NHAM	JH
ECON	203		INTERMED MICROEC TH		3CR
	1	865557 TU 19.00-22.00		MACH	E-33
E-D-U-C-A-T-I-O-N					
EDUC	290K		TRANSACTIONL ANALYS		3CR
	91	865735 W 19.00-22.00		GTWR	123
EDUC	290L		HIST OF PHOTOGRAPHY		3CR
	91	865913 TH 19.00-22.00		GTWR	119
EDUC	490E		INTERP CLSCL ANTQ CH		3CR
	91	866090 TU 19.00-22.00		GTWR	123
EDUC	490F		INTRO PROB LANG DEV		3CR
	91	866278 M 19.00-22.00		GTWR	123
EDUC	590M		FORM EVAL/LOCK LATIN		1CR
		CLASS MEETS 10/17/78 FROM 9.00 AM TO 3.00 PM AT FARLEY LODGE.			
	91	866456 BY ARRGT			
EDUC	590O		COMM-IMPL NEIGHBORHD		3CR
	91	866634 TH 19.00-22.00		GTWR	123
E-D-U-C H-U-M A-P-P-L S-O-C & B-E-H S-C-I					
EDUC H	490N		INTRO FAMILY COUNS		3CR
	91	866812 W 19.00-22.00		GTWR	119
EDUC H	575		SEM CURIC DEV IN ECE		3CR
	1	866993 W 19.00-22.00		GTWR	115
E-D-U-C P-O-L-I-C-Y S-T-U-D-I-E-S					
EDUC P	290B		BASC CON ORG BEHAV		3CR
		CLASS WILL MEET 9/7 & 9/14 FROM 19.00-21.30 AND 9/23, 9/24, 10/21, 10/22 FROM 9.00-5.00 AT FARLEY LODGE.			
	91	867177 BY ARRGT			
EDUC P	351		FOUNDATIONS OF EDUC		3CR
	1	867355 TU 19.00-22.00		GTWR	115
EDUC P	665		ORG FOR CURRIC DEVEL		3CR
	1	867533 TU 19.00-22.00		GTWR	121

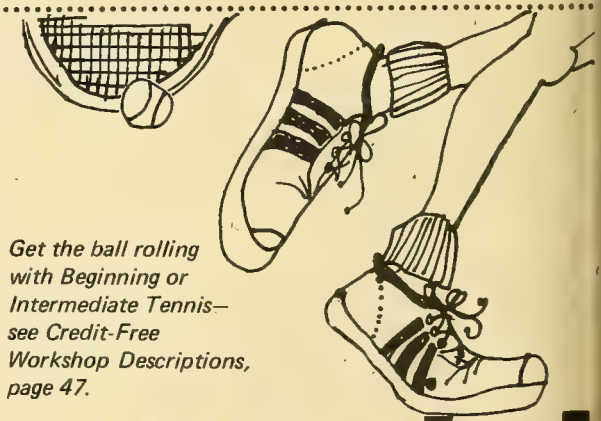
DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
E-N-G-L-I-S-H					
ENGL	131		SOCIETY AND LIT	C	3CR
	1	867711 M 19.00-22.00		PALM	HS
ENGL	140		READING FICTION	C	3CR
	1	867892 TH 19.00-22.00		BART	201
ENGL	150		EXPOSITORY WRITING		3CR
	1	868075 S 9.05-12.05		GTWR	115
ENGL	162		SCI FIC&IMAGINATION	C	3CR
	1	868254 M 19.00-22.00		BART	201
ENGL	263		MOD BRIT & AM DRAMA	C	3CR
	1	868432 TU 19.00-22.00		BART	201
ENGL	354		CREATIVE WRITING		3CR
		LAB FEE $5.00			
	1	868610 TU 18.30-21.30		NHAM	JH
E-N-T-O-M-O-L-O-G-Y					
ENT	226		INSECTS AND MAN	E	3CR
	1	868791 TH 19.00-22.00		FERN	H-2
ENT	590C		INSECT & SCIENCE ED		3CR
	91	868979 TU 19.00-22.00		FERN	H-2
E-X-E-R-C-I-S-E S-C-I-E-N-C-E					
EXCSCI	210		NUTRITION & HUM PERF		3CR
	1	869153 TH 19.00-22.00		BOYD	251
F-R-E-N-C-H					
FRENCH	110		ELEMENTARY FRENCH		3CR
	1	869331 MW 19.45-21.45		FERT	204
FRENCH	490A		MOD FR SOC-LIT/TRANS		3C
	91	869519 TU 18.30-21.30		NHAM	JH2
F-O-O-D S-C-I-E-N-C-E & N-U-T-R-I-T-I-O-N					
FSCN	102		WORLD FOOD HABITS		3CR
	1	869690 W 19.00-22.00		CHEN	329
FSCN	490C		TPC-NUTR BLOODISEASE		3CR
	91	869878 M 19.00-22.00		CHEN	217
G-E-N-E-R-A-L B-U-S-I-N-E-S-S F-I-N-A-N-C-E					
GB FIN	250		ADMINISTRATIVE STAT		3CR
	1	870057 M 19.00-22.00		SBA	107
GB FIN	260		INTRO TO LAW		3CR
	1	870235 W 19:00-21:30		SBA	116
GB FIN	301		CORPORATION FINANCE		3CR
	1	870413 TH 19.00-22.00		SBA	106
	2	870447 S 9.05-12.05		GTWR	119
GB FIN	330		PRIN OF INSURANCE		3CR
	1	870625 M 19.00-21.30		SBA	106
G-E-O-L-O-G-Y					
GEOL	105		GEOLOGY AND MAN		
		LAB FEE $3			E 3CR
	1	870803 W 18.30-21.30		NHAM	JH1
GEOL	110		ROCKS & MINERALS		E 3CR
		LAB FEE $3			
	1	870984 M 19.00-22.00		MCR4	16
G-E-R-M-A-N					
GERMAN	110		ELEMENTARY GERMAN		3CR
	1	871168 MW 19.00-20.30		FERT	225
GERMAN	190E		CONTM GERM EAST/WEST	C	3CR
	91	871346 TH 19.00-22.00		FERT	F

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
H-I-S-T-O-R-Y					
HIST	141		EUR HIST 1815-PRESNT	C	3CR
			LAB FEE$10		
	1	871524	W 19.00-22.00	HERT	206
HIST	150		DEV AMER CIV TO 1876	C	3CR
	1	871702	TH 19.00-22.00	PALM	HS
HIST	297G		SP-TPC RES/CNFOLGY		2CR
			LAB FEE $1		
	91	871883	M 19.00-21.00	HERT	206
HIST	400		AMER LABOR HIST	C	3CR
	1	872067	TU 19.00-22.00	HERT	206
H-O-M-E E-C-O-N-O-M-I-C-S					
HOM EC	391A		SEM-RETAIL MRCHDSNG		3CR
	91	872245	M 19.00-22.00	SK	205
HOM EC	590G		INST-SP STU SEC LEV		3CR
	91	872423	TU 19.00-22.00	SK	205
H-O-T-E-L R-E-S-T & T-R-A-V-E-L A-D-M-I-N					
HRTA	211		FOOD SERVIC MGMT		3CR
	1	872601	TH 19.00-22.00	FLIN	103
H-U-M-A-N-D-S-T E-N-G-I-N- & O-P R-E-S-E-A-R-C-H					
E	560	SAFETY ENGINEERING W 19:00-22:00			3CR
H-U-R-N S-T-U-D-I-E-S					
S	291S		SEM-EDTG SPEC PUB		3CR
	91	872782	W 19.00-22.00	MACH	W-17
S	391Z		SEM-PHOTOJOURNALISM		3CR
	91	872960	TU 19.00-22.00	MACH	W-17
I-E-G-A-L S-T-U-D-I-E-S P-R-C-G-R-A-M					
EGAL	250		INTRO LEGAL STUDIES		3CR
	1	873144	TH 19.00-22.00	HERT	225
EGAL	297M		SP TPC-RTS/MNTLY ILL		3CR
	91	873322	W 19.00-22.00	FLYK	CC
I-N-G-U-I-S-T-I-C-S (-M-.-A-. & P-H-D-.-)					
ING	101		PEOPLE&THEIR LANGLAG	C	3CR
	1	873500	M 19.00-22.00	HERT	116
I-A-T-H-E-M-A-T-I-C-S					
ATH	101		ALGEBRAIC REVIEW		1CR
			CLASS MEETS 9/6-10/5. ADD,DROPS ACCEPTED UNTIL 9/13.		
	1	873681	MW 19.00-20.30	GTWR	111
	2	873712	MW 18.30-20.00	NHAM	JH2
ATH	102		ANAL GEOM/ELEM FUNC		1CR
			CLASS MEETS 10/11-11/8. ADD,DROPS ACCEPTED UNTIL 10/18.		
	1	873893	MW 19.00-20.30	GTWR	111
	2	873924	MW 18.30-20.00	NHAM	JH3
MATH	103		PRECALC TRIG		1CR
			CLASS MEETS 11/13-12/13. ADD,DROPS ACCEPTED UNTIL 11/20.		
	1	874108	MW 19.00-20.30	GTWR	111
	2	874132	MW 18.30-20.00	NHAM	JH4
MATH	110		TPCS IN CONTEMP MATH	E	3CR
	1	874310	TUTH 19.00-20.30	GTWR	212
MATH	120		MATH FOR BUSINESS I	E	3CR
	1	874491	MW 19.00-20.30	GTWR	215
MATH	127		CALC LIFE-SOC SCI I	E	3CR
	1	874679	TUTH 19.00-20.30	GTWR	215
M-A-N-A-G-E-M-E-N-T					
MGT	301		PRINCIPLES OF MGT		3CR
	1	874857	TH 19.00-22.00	SBA	105
	2	874881	TH 18.30-21.30	NHAM	JH
MGT	314		PERSONNEL MANAGEMENT		3CR
	1	875065	TU 19.00-22.00	SBA	106
MGT	330		MANAGERIAL BEHAVIOR		3CR
	1	875248	M 19.00-22.00	SBA	112
MGT	331		ADMIN THEORY		3CR
	1	875421	M 19.00-22.00	FLYK	CC
MGT	347		PRODUCTION MGT I		3CR
	1	875609	TH 19.00-22.00	SBA	112
M-A-R-K-E-T-I-N-G					
MKTG	301		FUND OF MKTG		3CR
	1	875780	M 19.00-22.00	SBA	109
MKTG	410		BUYER BEHAVIOR		3CR
	1	875968	TH 19.00-22.00	SBA	109
MKTG	422		MKTG COMMUNICATIONS		3CR
	1	876142	TU 19.00-22.00	SBA	109
M-U-S-I-C					
MUSIC	100		APPRECIATION-INTRO	C	3CR
	1	876320	W 19.00-22.00	FAC	150
MUSIC	103		HISTORY OF JAZZ		3CR
	1	876508	M 19.00-22.00	FAC	150
N-A-T-U-R-A-L R-E-S-O-U-R-C-E S-T-U-D-I-E-S					
NAREST	100		CONSERV OF NATRL RES		3CR
	1	876689	TH 19.00-22.00	HOLD	305
N-U-R-S-I-N-G					
NURSE	300		PATHOPHYSIOLOGY		3CR
	1	876867	M 4.00-19.00	MCH4	406
NURSE	490C	PARENTING PERSPECT 91 M 19:00-21:00			3CR SPFLD
P-H-I-L-O-S-O-P-H-Y					
PHIL	100		INTRO TO PHIL	C	3CR
	1	877041	M 19.00-22.00	BART	125
PHIL	110		INTRO TO LOGIC	E	3CR
	1	877229	W 19.00-22.00	BART	125
PHIL	160		INTRO TO ETHICS	C	3CR
	1	877407	TU 18.30-21.30	NHAM	JH3
P-H-Y-S-I-C-S					
PHYSIC	100		PHYSICS FOR POETS	E	3CR
	1	877589	M 19.00-22.00	HAS	111

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
PHYSIC	117		NUCLEAR ENERGY	E	3CR
	1	877766 TU 19.00-22.00		HLYK	CC
PHYSIC	141		PHYS-LIFE SCI MAJ I	E	4CR
LEC	1	877944 TU 19.00-22.00		HAS	111
LAB	1	877978 TH 19.00-22.00		HAS	210
P-L-A-N-T P-A-T-H-O-L-O-G-Y					
PLPATH	100		PLANT DISEASE CONTROL		3CR
			LAB FEE $5		
	1	878152 M 19.00-22.00		FERN	107B
P-L-A-N-T & S-O-I-L S-C-I-E-N-C-E-S					
PLSOIL	100		BASIC PLANT SCIENCE	E	3CR
	1	878330 TU 19.00-22.00		FREN	209
PLSOIL	125		FLORICULTURAL SCI		3CR
			LAB FEE $10		
	1	878518 TH 19.00-22.00		FREN	209
P-O-L-I-S-H					
POLISH	197A		SP TPC-CONVS POLISH		2CR
	91	878699 TH 19.00-21.00		HLYK	CC1
POLISH	250		INTRO TO POLISH PPL	C	3CR
	1	878777 M 19.00-22.00		PALM	HS1
P-O-L-I-T-I-C-A-L S-C-I-E-N-C-E					
POLSCI	101		AMERICAN POLITICS	D	3CR
	1	879051 M 19.00-22.00		MACH	W-21
POLSCI	131		PROB-AMER POLITICS	D	3CR
	1	879239 TH 18.30-21.30		NHAM	JH1
POLSCI	141A		PROB-CONTEMP POLITCS	D	3CR
	91	879417 W 19.00-22.00		HLYK	CC1
P-S-Y-C-H-O-L-O-G-Y					
PSYCH	100		ELEMENTARY PSYCH	D	3CR
	1	879598 M 18.30-21.30		NHAM	JH1
PSYCH	110		PSYCH AS NAT SCI	D	3CR
	1	879776 TH 19.00-22.00		TOBN	307
PSYCH	205		EDUCATIONAL PSYCH	D	3CR
	1	879954 TU 19.00-22.00		TOBN	520
PSYCH	206		ORGANIZATIONAL PSYCH	D	3CR
	1	880133 TU 19.00-22.00		TOBN	623
PSYCH	240		STATISTICS IN PSYCH		3CR
	1	880311 W 19.00-22.00		TOBN	623
PSYCH	280		ABNORMAL PSYCH	D	3CR
	1	880492 TH 19.00-22.00		PALM	HS1
PSYCH	310		SENSATION & PERCEP	D	3CR
	1	880670 TU 19.00-22.00		TOBN	421
PSYCH	320		LEARN & THINK	D	3CR
	1	880858 F 9.05-12.05		HLYK	CC
PSYCH	350		CHILD BEHAV & DEVEL	D	3CR
	1	881032 S 9.05-12.05		GTWR	121
PSYCH	355		ADOLESCENT PSYCH	D	3CR
	1	881210 W 19.00-22.00		TOBN	307
PSYCH	360		SOCIAL PSYCHOLOGY	D	3CR
	1	881391 M 19.00-22.00		HLYK	CC1
R-H-E-T-O-R-I-C					
RHET	100C		RHET OF LANG AND WR	B	3CR
	91	881570 TH 19.00-22.00		BART	209
RHET	110A		LANGUAGE & SPEAKING	B	3CR
	91	881757 S 9.05-12.05		GTWR	123
RHET	140		RHET OF IMAG WRIT	B	3C
	1	881935 TU 19.00-22.00		BART	209
R-U-S-S-I-A-N					
RUSS	250		RUSSIAN CULTURE	C	3C
	1	882119 W 19.00-22.00		HERT	107
S-O-C-I-O-L-O-G-Y					
SOCIOL	102		AGE,SEX,KNSHP IN SOC	D	3C
	1	882290 TH 19.00-22.00		MACH	W-23
SOCIOL	103		SOCIAL PROBLEMS	D	3C
	1	882478 M 19.00-22.00		PALM	HS2
SOCIOL	222		THE FAMILY	D	3C
	1	882656 W 19.00-22.00		MACH	W-23
SOCIOL	241		CRIMINOLOGY	D	3C
	1	882934 M 18.30-21.30		NHAM	JH5
S-P-A-N-I-S-H					
SPAN	110		ELEMENTARY SPANISH I		3C
	1	883018 TH 19.00-22.00		HERT	224
	2	883042 TH 19.00-22.00		PALM	HS2
SPAN	180		ORAL SPANISH I		3C
	1	883220 M 19.00-22.00		HERT	224
S-T-A-T-I-S-T-I-C-S					
STATIS	121		ELEM STATISTICS	E	3C
	1	883408 MW 19.00-21.30		GTWR	213
W-O-M-E-N'-S S-T-U-D-I-E-S					
WOST	191A	SEM: SO THNK CNT WRIT			3C
	91	M 19:00-22:00		*Location to be announce	

Z-O-O-L-O-G-Y

ZOOL	101		INTRO ZOOLOGY	E	3C
LEC	1	883589 TH 19.00-22.00		MCR4	203
LAB	1	883610 TU 19.00-22.00		MCR	338



Get the ball rolling with Beginning or Intermediate Tennis— see Credit-Free Workshop Descriptions, page 47.

Tennis!

Departmental Course Offerings
During Evening Hours

Many academic departments regularly schedule courses during the evening. A complete listing of these will be available at the Continuing Education Records Office, 113 Hasbrouck, during August. This semester, the School of Business Administration and the School of Education have supplied for publication a partial list of the *graduate* courses they offer after 6 p.m. The list is printed below for your reference.

Registration for these courses is on a *space-available basis only* and must be accomplished through the Graduate School. Students not currently in graduate degree programs must complete and submit a Graduate Non-Degree Student Application and a notarized Proof of Massachusetts Residency form. Tuition is $33.50 per credit hour for in-state residents and $77.50 per credit hour for out-of-state residents. In addition, students enrolling for fewer than five credits are assessed a mandatory General Fee of $40.75 per semester and students enrolling for five credits or more are assessed a General Fee of $122 per semester.

Graduate Non-Degree Student Applications and Proof of Massachusetts Residency forms are available at the Graduate Admissions Office, Graduate Research Center and,at the Continuing Education Records Office, Hasbrouck, University of Massachusetts at Amherst. Application and registration must be completed no later than September 12, 1978. Please refer to page 4 for additional information on registration in graduate level University courses.

For further information on individual courses, including necessary pre-requisites, please contact the School of Business Administration or the School of Education. All registrations by Non-Degree students are subject to instructor's approval.

BUSINESS ADMINISTRATION

BA 641 FINANCIAL MANAGEMENT
THURSDAY, 7-9:30 P.M., 3 CREDITS

BA 797A BUSINESS ETHICS
WEDNESDAY, 7-9 P.M., 3 CREDITS

EDUCATION

EDUC H 522 EDUCATION AND THE SELF
TUESDAY AND THURSDAY, 7:45-10:45 P.M., 3 CREDITS

EDUC H 591F SOCIAL COMPETENCY: EVALUATION IN EARLY CHILDHOOD EDUCATION
MONDAY, 7-9:30 P.M., 3 CREDITS

EDUC H 591G SOCIAL WORK AND THE LAW
THURSDAY, 7-9:30 P.M., 3 CREDITS

EDUC H 606 SCHOOL COUNSELING PROCEDURES
MONDAY, 7-9:30 P.M., 3 CREDITS

EDUC H 622 LEADERSHIP IN EDUCATION OF THE SELF
TUESDAY AND THURSDAY, 7:45-10:45 P.M., 3 CREDITS

EDUC H 653 HELPING ADOLESCENTS COPE WITH THEIR PROBLEMS
TUESDAY, 7-9:30 P.M., 3 CREDITS

EDUC H 678 PRACTICUM IN HUMANISTIC CURRICULUM DEVELOPMENT
MONDAY, 7-9:30 P.M., 3 CREDITS

EDUC H 790U MORAL/SOCIAL EDUCATION
MONDAY, 7-9:30 P.M., 3 CREDITS

EDUC I 568 CURRICULUM DEVELOPMENT IN URBAN EDUCATION
TUESDAY, 6:30-9 P.M., 3 CREDITS

EDUC I 590A ENVIRONMENTALISM: PHILOSOPHICAL AND HISTORICAL FOUNDATIONS
THURSDAY, 7-9:30 P.M., 3 CREDITS

EDUC I 590O METHODS OF TEACHING ENGLISH AS A SECOND LANGUAGE
WEDNESDAY, 6:30-9 P.M., 3 CREDITS

EDUC I 690A SEMINAR: LANGUAGE ARTS INSTRUCTION
MONDAY, 7-9:30 P.M., 3 CREDITS

EDUC I 690S URBAN FIELD RESEARCH IN CURRICULUM: INQUIRY AND EVALUATION
WEDNESDAY, 6:30-9 P.M., 3 CREDITS

EDUC I 709 SEMINAR IN READING
WEDNESDAY, 7-9:30 P.M., 3 CREDITS

EDUC P 558 EDUCATION STATISTICS LABORATORY
MONDAY, 7-9:30 P.M., 1 CREDIT

EDUC P 590K PRE-SCHOOL PROGRAM ASSESSMENT
THURSDAY, 7-9:30 P.M., 4 CREDITS

EDUC P 690P HISTORY AND PHILOSOPHY/VOCATIONAL EDUCATION
WEDNESDAY, 7-10 P.M., 3 CREDITS

Program Alternatives

The following program alternatives to traditional higher education provide a chance to pursue an interest or acquire a degree at convenient times and locations for adults already committed to active involvement in families, careers, or communities. Part-time students are recognized as valuable assets to the University community, and every effort is made by the Division of Continuing Education to make the resources of the University accessible to them.

Response Programming

Any organization or group of individuals may make a request for a specific credit course or Credit-Free Workshop to be offered through the Division of Continuing Education. Courses and workshops can be arranged to suit most schedules and may be offered in any suitable location as long as there is sufficient enrollment. Response courses and workshops can be requested by contacting the directors of the programs at (413) 545-3410.

The Continuing Education Unit (CEU)

The CEU is designed for in-service professionals and non-professionals who want to maintain a record of their participation in approved non-credit continuing education programs. It is not equivalent to academic credit, but it is applicable to appropriate learning experiences of adults at all levels from post-secondary to post-doctorate for all classes of adult learners, whether vocational, technical, professional, managerial, or adults bent on personal improvement; and in all formats of teaching and learning. CEUs are generally transferable from one institution to another.

The Division of Continuing Education, University of Massachusetts/Amherst, will award a specified number of Continuing Education Units to each individual who successfully completes a workshop approved for the awarding of CEUs. Each CEU represents ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. The number of CEUs per workshop is determined by the total number of contact hours. Awarding only some part of the CEUs offered in a workshop is not an option, and to receive CEUs each workshop participant must attend the total number of contact hours required and/or meet the established evaluative criteria.

Students may request an official cumulative transcript of CEUs at any time. Send a written request, indicating the name and address of the recipient of the transcript to: CEU Transcript Request, Division of Continuing Education, Hasbrouck, University of Massachusetts, Amherst MA 01003. A fee of $2.50 is charged after the first request.

Arts Extension Service

The Arts Extension Service is a community development program which works to meet the needs of continuing education in the arts. The first objective of AES is to help develop effective and self-sufficient community arts organizations. Second, AES responds to the educational, marketing and informational needs of individual artists, craftspeople and arts interested people. Third, AES provides contact and involvement in the arts for people of all ages in the communities of western New England.

Activities include: consulting services in technical and management problems; workshops in community arts management and group dynamics; projects servicing the arts interests and needs of older people, inner city people, rural communities and other special interest groups; maintenance of the Arts Directory, a listing of regional artists; a series of arts seminars and conferences; a booking referral service for artists; Communities to Campus, a program aimed at making UMass/Amherst campus events more available to communities, and "The New England Artists Festival and Showcase," which brings the art and performance talents of western Massachusetts together for a major two-day celebration.

AES also serves as an arts reference center, providing information about and assistance with arts activities and services in western New England.

The Arts Extension Service publishes:

The Arts Directory
Arts Festivals; A Work Kit
The Logo Handbook
The AES News

For information contact Arts Extension Service, Hasbrouck, University of Massachusetts, Amherst MA 01003, (413) 545-2013.

Asian Studies

Founded in 1972 by a group of scholars, artists and student who were dissatisfied with the isolated extremes of religious practitioners and academics, the American Institute of Buddhist Studies tries to bring together these complimentary opposites. The Institute's goal is to offer educational preparation to people interested in the systems of thought and aes-

etic sensitivity generated by Asian Civilizations. The offer-
gs constitute points of access to an understanding of these
urces of inspiration and self-realization.
For individual course information, please see the Asian
udies section on page 13.

Communities in Action

Citizen Involvement Training Project (CITP)

The Citizen Involvement Training Project is a community-
iented program designed to help citizens and citizen groups
ve more impact. CITP is a three-year program which began
December, 1976. Its services include workshops, consulta-
on sessions, the development of written training materials
d a citizen involvement resource library.
CITP works with any citizen group, from mandated citizen
ards and councils to grass-roots organizations. Among those
ganizations requesting CITP services in the past are: Council
r Children, Massachusetts Tenants Rights Union, Multi-
cial Service Center, Spanish-American Union, Grey Panthers
d ACTION.
Citizen groups may obtain CITP services by filling out an
plicant Record Packet, which will help staff members
gnose problems and issues during a two-hour consultation
sion. Based on this consultation, CITP will arrange and
sign tailor-made workshops or future consultation sessions.
CITP is funded by a major grant from the W. K. Kellogg
undation, and grants from the Blanchard and Polaroid
undations. It is sponsored by the Division of Continuing
ucation, in conjunction with the Cooperative Extension
vice.
To request service or additional information contact
ve Magnani, Project Coordinator, Hasbrouck, (413) 545-
50.

Dialogue '77

Dialogue '77 is a low cost, high quality programming re-
rce for individuals and organizations. It offers a series of
ions which provide the opportunity to discuss issues of
al concern. They are intended to stimulate dialogue in
formats. One, called "The Written Word," encourages a
onable amount of reading prior to the group's meetings,
number of which are determined by the participants.
seoond format is called "The Visual Image." Participants
meet once, view a film and discuss its issues.
Guides are provided for group leaders who are selected
ach group by its members to keep the discussion moving.
guides consist of background materials for the two-hour
ons and include ideas, insights, information, suggested
ings, discussion questions, and bibliographies, together
instructions for participants and for the discussion
er. The approach is lively, informal, non-academic and
anned to interest people from various walks of life and
ge them in discussions of current social issues.

reat Decisions

reat Decisions, a national program with world-wide
erns, began in 1954. Nationally, the program is spon-
d by the Foreign Policy Association, a non-profit, non-partisan organization which, since 1918, has been stimulating voluntary and constructive participation in world affairs. Locally, Great Decisions is facilitated through the State Coordinator's office for Great Decisions, at the Division of Continuing Education.

Great Decisions participants usually meet in informal community groups of between five and fifteen members, and examine eight crucial issues in current U.S. foreign policy. They assess background information, evaluate diverse opinions and communicate their own informed opinions about the directions of governmental action to the State Department and the Congress.

For further information about Great Decisions, please contact program coordinator, Lin Maria Riotto, Great Decisions, Division of Continuing Education, Hasbrouck, University of Massachusetts, Amherst MA 01003.

Workshops

Communities in Action workshops are designed to meet some of the training needs of community organizations. This series of short, intensive and inexpensive workshops is intended for board members, staff and volunteers of citizen councils and non-profit community organizations of all types. Among the topics included are leadership, decision-making, organizational development, volunteer management, planning and budgeting, public relations, government and more. Instructors for each of the workshops are practitioners with both theoretical knowledge and practical experience in the topic area. In most cases workshops are three to five hours in length and after just spending those few hours in the classroom, participants can return to their organizations bringing with them new skills and ideas.

While most workshops are held on the University campus, we are prepared to organize existing and new training workshops for individual organizations in their own communities.

Workshops to be offered this fall may be found on page 42 in the Credit-Free Workshop section of this catalog. Participants may register using the Credit-Free Workshop registration form.

Human Services Training

The Division of Continuing Education recognizes the need for comprehensive, relevant training to be made available to individuals who work in the field of human services. To help meet this need, the Division is currently collaborating with the Western Massachusetts Training Consortium to provide workshops and courses in this area. For further information concerning the availability of training in the human services, please contact Mr. Harvey Stone, Associate Director, Western Massachusetts Training Consortium, 107 Hasbrouck, University of Massachusetts, Amherst MA 01003, Telephone (413) 545-1318.

Liberal Studies

The Adult Liberal Studies Program offers a unique opportunity for adults to take courses designed specifically for their interest and stimulation. The courses are taught by some of the area's most able educators. All carry University credit and may be taken as part of a Bachelor of General Studies program. Students may also take individual courses for enrichment, whether or not they intend to apply the credits toward a formal course of studies. A Certificate of Liberal Studies will be awarded at the completion of thirty hours of credit.

This program is not intended to train experts in a narrow specialization but to provide opportunities for those who seek broad, interdisciplinary paths to knowledge and understanding. Its objectives are to expand awareness into the past, the future and beyond the limits of the contemporary West; increase students' ability to discriminate, analyze and articulate and to engender a sense of aesthetic appreciation.

Courses are taught by outstanding area educators selected for their teaching ability, their command of their subject and their interest in adult education. The program offers courses at various locations and at times convenient for adults. Specific information may be obtained by contacting Frederick Robinson at (413) 545-2040.

Please see Bachelor of General Studies, page 26 and the Quadrangle announcement, page 5.

Library Science

The Division of Continuing Education, by arrangement with the University of Rhode Island, offers Library Science courses each semester which may be applied to a University of Rhode Island Master's Degree in Library Science.

The MSLS degree requires 36 hours of credit, including six hours of electives. Half of the requirements for the degree may be completed through continuing education before the participant continues in residence at the University of Rhode Island's Kingston campus. In order to be eligible for the degree program, students must possess a Bachelor's Degree from an accredited college or university with an average of B or better. It is not necessary to be enrolled in a full degree program to receive credit for the courses, although a Bachelor's degree is still required. Students who wish to be admitted to the degree program should apply prior to obtaining 12 credits through Evening College.

Persons interested in further information about application procedures for the full degree program should contact the Dean's Office, Graduate Library School, University of Rhode Island, 74 Lower College Road, Kingston RI 02881, telephone (401) 792-2947. Registration for individual Library Science courses is done through the Division of Continuing Education.

Fall 1978 Library Science Courses*

Cataloging and Classification LSC 505

Introduction to the principles and practices of descriptive and subjective cataloging and classification using the Dewey Decimal Classification and Sears Subject Headings, with an introduction to the Library of Congress Classification. Emphasis is on books and book-like materials in libraries of various kinds. University of Rhode Island credit: 3. Course fee: $140.

Multi-Media in the Library LSC 528

The role of Audio-visual materials in media centers and other types of libraries. *Prerequisite: LSC 520.* University of Rhode Island credit: 3. Course fee: $140.

*All Library Science courses are listed in the schedule of courses under CONTED. For registration purposes, use the schedule of courses for course names and registration numbe

The Graduate Library School of the University of Rhode Island reports that the GLS Self-Study has been sent to the American Library Association. The School is now making plans for an expected visit from the Committee on Accreditation in September, 1978, with high hopes for a positive evaluation of the work done in response to the Committee's 1976 recommendations. Re-accreditation as a result of that visit will mean that all students attending the Graduate Library School on the Kingston campus and the Regional Centers between June 1976 and January 1979 will have been covered by the accreditation umbrella.

The GLS Consultant reported to the Dean in February that "the School has made. . .a remarkable response to the recommendations (and). . . substantial progress. . .in virtually every area." Copies of the Self-Study and the Consultant's report are available for short-period loans from the Dean's office.

Management Development

The School of Business Administration, in collaboration with the Division of Continuing Education, conducts semin workshops, courses and other special format programs on various aspects of management education. Many topics are offered under the general areas of Management, Personnel Practices, Labor Relations and Training Technology. Outstanding programs are given throughout the year to manage from business, industry and non-profit organizations. Helc on and off campus, programs are tailored to meet the client needs, with special emphasis given to follow-up procedures.

iries should be addressed to: Carol B. MacKnight, agement Development Programs, Continuing Education, ersity of Massachusetts, Amherst MA 01003.

urse Practitioner

he Nurse Practitioner Program is conducted by the Uni- ty of Massachusetts' Division of Nursing in collaboration the School of Medicine and the Division of Continuing cation. As an interdisciplinary Continuing Education ram for professional nurses, the program provides a prac- approach toward the improvement of primary health services, and covers a ten-month period. Participants elect to specialize in primary health care services for escents/young adults or adults. The Nurse Practitioner ram begins in September. The deadline for application y 1, 1979. All inquiries should be directed to: Sally , Co-Director, Division of Nursing, University of Massa- tts, Amherst MA 01003.

ant Engineering ogram

tural Analysis of Existing Buildings

ondays, 7-9:30 p.m., September 18-November 20, 1978

troduction to mechanics: shears, tension stresses and ctions. The structural design of steel and concrete foot- gs foundation walls, floor systems, columns, beams, girders ase plates is examined. The design of wood members. rints from area plants used for discussion of the func- concepts and decisions required in the introduction, enance and deletion of structural elements. Field trips.

ng and Cooling Systems Design: Psychometrics and ad Calculation

dnesdays, 7-9:30 p.m., dates to be announced

pics include: review of equipment and materials rification, estimating heating and cooling loads, types gerating systems, ventilation requirements, refrigeration, ychometrics, air distribution requirements, water and nvironmental control, temperature controls, humidity ur energy and energy conservation.

register, contact the Continuing Education Registration ffi , 113 Hasbrouck, University of Massachusetts, Amherst A 003, telephone (413) 545-3653.

Real Estate Certificate Program

The Real Estate Certificate Program is designed to provide real estate personnel with the opportunity for personal growth and career development. It is structured to meet the needs of the working professional as well as to prepare the student for a career in real estate. Property owners, investors, and others will also find seminars offered through this program to be of great interest.

The Real Estate Program offers the widest selection of seminars of any university in New England. The program is open to the general public. Participants may enroll in a single class or elect to pursue a full program of eight or more courses, thus qualifying for the Certificate in Real Estate Studies.

Upon approval, Continuing Education Units (CEUs) will be awarded for each course successfully completed. To be eligible to receive CEUs, 80 percent attendance for the class sessions is required in addition to meeting the requirements as defined by the instructor.

The CEU is a nationally-recognized, standard unit earned by participation in substantive non-credit learning experiences. One CEU represents 10 contact-hours of participation; thus a 30-hour seminar would equal three CEUs. The Division maintains a permanent record of all CEUs awarded. Individual transcripts are available for job applications, personnel files and similar uses by writing to: CEU Transcript Request, Division of Continuing Education, 113 Hasbrouck, University of Massachusetts, Amherst MA 01003. A fee of $2.50 is charged after the first request.

To register by mail complete the Credit-Free Workshop registration form on page 25. Place the numbers listed next to Real Estate seminar titles in the space designated for workshop numbers. Be sure to include the $5 registration fee required of Real Estate Certificate Program participants. Mail registrations must be received no later than September 11. Walk-in registrations will be accepted by the Continuing Education Records Office through the first day of classes. If desired, students may register for Spring seminars this Fall.

The program will offer seminars off campus whenever the demand warrants doing so. In addition, special seminars and workshops will be offered during the year. For inquiries or suggestions, contact Carol B. MacKnight, Real Estate Program, Division of Continuing Education, University of Massachusetts, Amherst, MA 01003, (413) 545-2040.

Real Estate Program Fall 1978

Modern Real Estate Practices A100

September 18-December 11, Mondays, 7-9:30 p.m., $95

Introduction to the real estate profession. Topics include: physical, legal and economic characteristics of real estate, general business law, real estate contracts, finance, brokerage administration, land development and appraising techniques. Prepares students for the Real Estate Salesperson's Examination.

Appraising Residential Properties A103

September 18-December 11, Mondays, 7-9:30 p.m., $130

Introduction to residential appraisal for the beginning appraiser, real

estate broker, lender, builder and assessor. Examines some basic theories, principles of real property evaluation, economic factors affecting their value, appraisal process and the appraisal report. Topics include: analyses of location, neighborhood and site, classic appraisal approaches, building evaluation, depreciation, cost approach to value and market approach to value. Prerequisite: A100, or consent of instructor.

Appraising Income Properties B107

September 21-December 14, Thursdays, 7-9:30 p.m., $135

Introduction to the appraisal of commercial, multiple residential and other income properties for the beginning appraiser, real estate broker-salesperson, lender, assessor or builder. Topics include: the appraisal process, site analysis and evaluation, building cost estimates, property value analysis, the market data approach, the income approach, gross rental and operating expenses, capitalization rates, methods of capitalization and the residual techniques, final correlation and appraisal report. Prerequisite: A103, or consent of instructor.

Basic House Construction: Design and Systems A104

September 19-December 5, Tuesdays, 7-9:30 p.m., $100

Fundamentals of residential construction with emphasis on energy conservation in new and older buildings. Other topics are: labor costs, materials and equipment costs, insurance, taxes, overhead, profit, building codes and property standards. Experience in construction cost estimating and in designing buildings for greater stability.

Applied Real Estate Math A106

September 19-December 5, Tuesdays, 7-9 p.m., $100

For those who need a better understanding of mathematical techniques. Reviews fractions and decimals, percentage and straight line, interest and commission, millage and taxes, title and fire insurance, proration of taxes and insurance; square root and exponents, basic algebra, capitalization, closing statement and balance sheet. Prepares students for the Real Estate Salesperson's and Broker's Examination.

Property Management B113

September 19-December 12, Tuesdays, 7-10 p.m., $130

General overview of the basics of real estate management. Covers market conditions, monetary influences, government involvement, cyclic aspects of real estate, changing forms of ownership, the marketing process for residential, commercial, institutional and/or industrial use, maintenance and administrative procedures including tenant selection, selection of personnel, record keeping, accounting, taxes and insurance. Approved for 5 points toward the designation of Certified Property Manager.

Real Estate Investment and Taxation B110

September 20-December 13, Wednesdays, 7-9:30 p.m., $130

Examines the economic profiles of different types of income properties. Attention to the impact of marketing, financing, leasing, urban dynamics, management, taxation, development in capital structure on different properties. Investment needs are related to evaluation return on equity investment in decision-making.

Real Estate Law A101

September 20-December 13, Wednesdays, 7-9:30 p.m., $95

Provides basic knowledge of real property law and examines legal difficulties that can arise in real estate transactions. Case studies and practical applications of legal principles enhance problem solving skills. Topics include: sources of real estate law, nature and classes of property, acquisitions or transfer of property, methods of ownership, incidents of ownership, contracts, mortgages and trust deeds, liens, taxes and easements, covenants, conditions and restrictions, escrows, leases and landlord-tenant relationships and title examination. Recommended as preparation for the Broker's License Examination.

Real Estate Finance A102

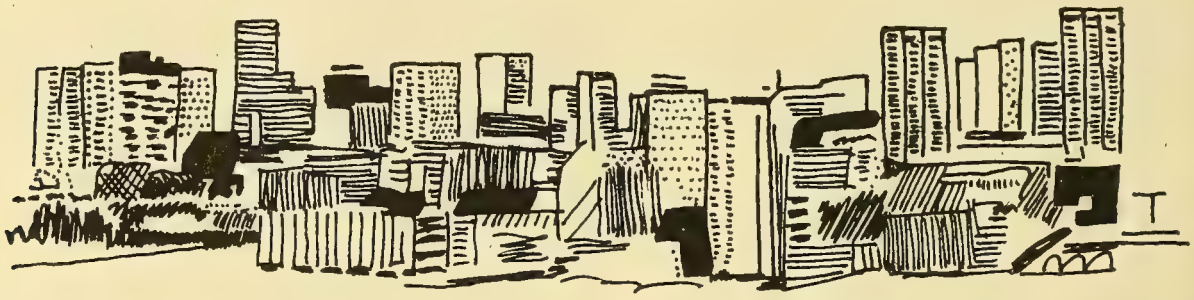
September 21-December 14, Thursdays, 7-9:30 p.m., $95

Examines legal instruments for financing real property, FHA and VA Loan procedures, sources of financing, mortgage-lending process, and financing characteristics of residential, multi-family and commercial property. Case Studies are used to illustrate lending policies, problems and rules involved in financing real property.

Fire and Casualty Insurance D224

September 14-December 14, Thursdays, 6:30-10 p.m., $160

Prepares students for the Fire and Casualty Insurance Examination. Designed to meet the educational requirements of the Commonwealth of Massachusetts Fire and Casualty Insurance; recommended by the Division of Insurance. Analysis of insurance policies and forms. Among the policies reviewed are: automobile and home insurance, workman's compensation and employer's liability, personal theft, boiler and machinery insurance, standard fire insurance, commercial and liability insurance, condominium insurance, inland and marine insurance.



Insurance License Preparation: Life D225

Offered in Spring, 10 meetings, 7-9 p.m.

For the person who plans to take the Life Insurance Licensing Examination. Designed to meet the educational requirements in the Commonwealth of Massachusetts.

Insurance License Preparation: Accident and Health D226

Offered in Spring, 10 meetings, 7-9 p.m.

Recommended by the Division of Insurance, Commonwealth of Massachusetts, prior to sitting for the license examination in Accident and Health. Students completing the seminars in Fire and Casualty, Accident and Health, and Life Insurance meet the educational requirements of 90 hours for the Full Broker's License. Prepares students for the Accident and Health Insurance Licensing Examination.

Foreclosure, Bankruptcy Problems and Creditor's Rights A107

Offered in Spring, 12 meetings, 7-9:30 p.m.

Examines the legal and practical problems of enforcing secured interest in real estate. Includes deeds in lieu of foreclosure, receiverships, mortgages in possession, methods of working out defaulted loans, preserving rights against guarantors, and title companies and related bankruptcy problems.

Real Estate Taxation and Exchange Techniques B111

Offered in Spring, 12 meetings, 7-9:30 p.m.

Outlines the general importance of tax considerations in real estate, with special attention to depreciation and capital gains. Taxation in regard to the forms of ownership and exchanges. Practical and technical aspects of the exchange presented through exchange examples and case studies. Useful for those interested in increasing

urn on their investments. Prerequisite: A100, A102 or consent the instructor.

naging and Selling of Distressed Properties C121
Offered in Spring, 10 meetings, 7-9 p.m.

ected toward property managers, real estate officers of lending titutions, mortgage bankers, house officers, property owners d entrepreneurs concerned with unprofitable or distressed real ate. How to analyze a distressed property, evaluate its operation, ablish priorities, determine the property's economic potential d develop a comprehensive workout plan. Case studies and rcises used for discussion of the causes of and solutions for ubled properties.

al Estate Law II: Abstracting and Title Closing D102
Offered in Spring, 12 meetings, 7-9 p.m.

views the techniques employed in abstracting titles. Topics in-de: recording statutes, title abstracting, surveys and legal scriptions, title holdings, partnership agreements, mortgages, sing, deeds of conveyance and settlements and closings. Prepares student to satisfy the expectations of the law firm employer. quaints other interested persons with the details and procedures title search, examination and closing. Pre- or co-requisite: 01.

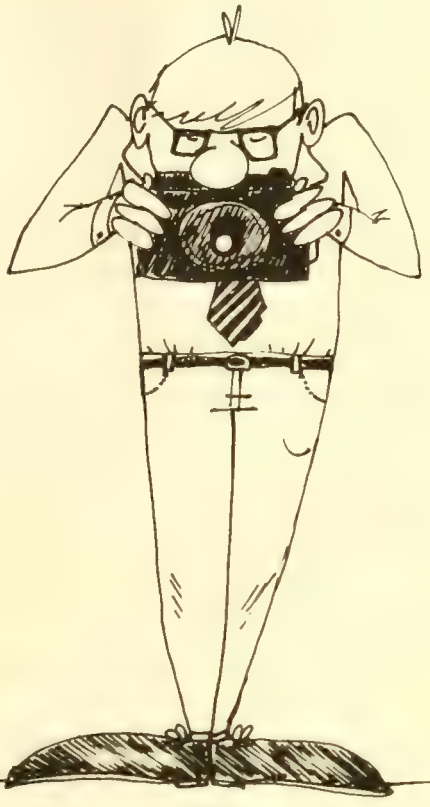
econd Bachelor's Degree

In cooperation with the University of Massachusetts' missions Office, the Division of Continuing Education offers art-time program to prepare students in a variety of fields a second Bachelor's degree. The purpose of the Second chelor's Degree program is to offer to college graduates the portunity to do additional **part-time** undergraduate study in eld unrelated to previous degree study. This part-time study estricted to three courses or eleven credits. See **Overloads.** e program serves: 1) as a route for those students who want complete a prerequisite, undergraduate major in an area ferent from their first Bachelor's degree study in prepara-n for graduate study; or 2) as a route for those students who not need to do graduate study in order to meet job/career uirements or changes, but do require additional formal ucation.

A graduate of the University of Massachusetts must acquire inimum of 30 credits at UMass, fulfilling departmental l school or college degree requirements. Graduates of other itutions of higher learning must fulfill a minimum of 45 dits at UMass.

Contact Harry Neunder, Student Services, Division of Con-uing Education, Hasbrouck, University of Massachusetts, herst MA 01003, for advising and application. The dead-ines for applying are October 1 for the spring and March 15 the fall. Late applications will be considered on a space-ailable basis. All academic policies and standards of the versity, as well as of the Division of Continuing Education, apply.

PHOTOGRAPHY



Gather 'round the camera and pick up all the skills you need, whether you're a negative novice or a darkroom dare-devil! Get the full picture on page 46.

Teacher Education

The Division of Continuing Education, in cooperation with the Teacher Education Council (TEC) of the School of Education, and with other academic departments of the University offers a program for post-baccalaureate students that leads to teacher certification in elementary or secondary education. Most of the Teacher Education programs require a minimum two-semester commitment. Coursework is taken the first semester and student teaching is completed the second semester. It should be noted that this is *not* a graduate program. It is designed *only* for teacher certification. Certification is available in the following educational areas:

Agriculture	Foreign Languages
Art	Home Economics
Bilingual/Bicultural	International
Communications Studies	Mathematics

Cross-Cultural
Early Childhood
Elementary
English
Environmental
Music
Physical Education
Science
Social Studies

Admission

In order to enroll in the certification program, all applicants must have a bachelor's degree and must be selected by the Coordinator of Teacher Education as well as by the programs for which they are applying. Applicants need: 1) a formal application form, 2) two letters of recommendation, 3) official transcripts, 4) interview by the Coordinator of Teacher Education.

Once applicants have been formally accepted to specific programs and have determined the amount of course work required and student teaching site information, they must return to the Coordinator for registration counseling.

Registration and Fees

Registration and fees are handled through the Division of Continuing Education. The course fee is $105 per three-credit undergraduate course, $150 per three-credit graduate course, the usual registration fees, and a $15 application fee. Students enrolling in this program will be governed by the administrative policies of the Division of Continuing Education; all academic policies and standards of the University and the School of Education will apply.

Program Application

For further information and an application form, write to Harry Neunder, Teacher Education, Division of Continuing Education, 103 Hasbrouck, University of Massachusetts, Amherst MA 01003. **Application deadline: April 1 for fall semester and November 1 for spring semester. Late applications will be considered on a space-available basis.**

Technical Guidance Center for Environmental Quality

The Technical Guidance Center for Environmental Quality functions as an energy/environmental outreach program providing educational services and resources to the general public. Resources, in addition to staff services and referrals, include a comprehensive and current collection of reports, periodicals, abstract series, film listings and directories. Articles, newsclips and other materials covering relevant subject areas are cataloged for public use. The annotated energy files are particularly comprehensive, containing references to most major publications in the field. Among the Center's areas of interest are environmental quality, energy resources and conservation, and land use, as well as related policy, legislation, and regulations. The Center also provides its own publications, including the *TGC Bulletin*, a periodic newsletter.

Current projects and programs include collaboration in environmental sciences/in-service teacher training programs in several rural school districts, resulting in a prior needs assessment, and a series of statewide day-long forums on energy, environment and economics. The latter, a dialogue on energy issues, is expected to involve such diverse audiences as scientists and engineers, citizen groups, public audiences, utility companies and the media. For the forums, a *Register* has been compiled containing academic experts from 67 colleges and universities across the state, including their areas of interest. The *Register* will be disseminated free of charge to participants, local libraries and community groups.

Many activities of the Technical Guidance Center are wor related programs designed to advance competence in special areas of concern in response to the needs of professionals. Workshops and symposia focus on timely topics relevant to changes in environmental fields.

The Technical Guidance Center is located at 135 Hasbrou on the University of Massachusetts campus at Amherst, Amherst MA 01003, telephone (413) 545-0347 or 545-051

Veterinary Technician Training

The Division of Continuing Education, in cooperation w the Massachusetts Veterinary Medical Association and the Stockbridge School of Agriculture of the University of Mass chusetts, announces a series of workshops aimed at upgradi the skills of individuals currently employed as veterinary te nicians. Workshops, staffed by veterinarians and technician who are experts in their respective fields, offer students the opportunity to participate in lecture and "wet-lab" classes i general animal nursing, introduction to hematology, anesth ology, radiology or reproduction and sterility.

This series of training modules is intended to meet the continuing education needs of individuals who serve veterin ians in small-animal health practices. It is also the intent of this in-service training program to provide each student with heightened awareness of his/her service role to the veterinar and with an increased capacity to carry out his/her functio

Enrollment is limited accordingly to the nature of the w shop. Students are required to spend time in the laborator working with live subjects and performing tasks, while learn g new or refining previously acquired technical skills. All workshops are conducted on weekends.

For exact titles of workshops, times and places, please contact the Veterinary Technician Training Program, Room 0 Hasbrouck, or call (413) 545-2040.

Credit-Free Workshop Program

The Credit-Free Workshop Program is a series of workshops offered by the Division of Continuing Education specifically for persons interested in expanding their skills, furthering their careers, improving their community life, or partaking of the expertise offered by others, usually experts and teachers in their fields. The workshops are for those for whom academic credit is not a priority.

Admissions

The Division of Continuing Education has an open admissions policy with regard to the Credit-Free Workshops it offers. Interested persons may enroll for as many workshops as they wish without concern for their educational background.

Sixty and Over Policy

Persons aged sixty and over may register, free of charge, for any Credit-Free Workshop, provided that the workshop has met its minimum enrollment. Registrations will be accepted and applicants will be notified when the minimum is reached.

Mail Registration

To register by mail, complete the workshop registration form included in this publication, and mail by September 15 with full payment to:

Credit-Free Workshops, AE 78-8
Division of Continuing Education
University of Massachusetts
Amherst MA 01003

Make checks payable to: Continuing Education, AE 78-8. All registrations must be postmarked September 15 at the latest.

Phone Registration

Students choosing to make payment by American Express, Master Charge or VISA may register for Credit-Free Workshops by telephone. Please select workshops carefully, and telephone the Continuing Education Records Office at (413) 545-3653. Phone registrants must supply all personal data requested on the mail-in registration form (see page 25) and all credit card numbers including Master Charge Bank number and expiration date.

Workshop Confirmations

When registration for a workshop meets the minimum number, registrants will be notified by mail with a class card which includes notice of the meeting place. Most workshops will be confirmed during the week prior to the beginning of workshops. Please do not call the office for earlier confirmation; **please wait** until one week before the workshop is scheduled to begin.

In-Person Registration

Walk-in registrations will be accepted at any time on a space-available basis. Come to the Continuing Education Records Office located in Room 113, Hasbrouck. Office hours are:

Monday-Thursday, 8:30 a.m.-7 p.m.
Friday, 8:30 a.m.-5 p.m.
Saturday, 10 a.m.-1 p.m. *(Closed holiday weekends)*

Enrollment in all workshops is limited to a number that is manageable and acceptable to each instructor, therefore early registration is encouraged. When requests for a workshop exceed the number to be enrolled, the Division will attempt to arrange for an additional section. Names of registrants will be placed on a waiting list in the order in which they are received. In-person registrants will also receive a *confirmation card* (see above).

Fees

Credit-Free Workshops are self-funding and, in general, fees have been computed on the basis of the number of contact hours which a workshop meets. In order to make each workshop self-supporting, a minimum number of enrollments is usually necessary. Fees are included in the workshop descriptions beginning on page 41.

Payment

Full payment of workshop fees must be made at the time of registration. Payment may be made by check, money order, American Express, Master Charge or VISA. To make a credit card payment for a mail registration, please complete the credit card payment section of the mail registration form. All credit card identification numbers (including bank number for Master Charge cards), credit card expiration date and credit card holder's signature must be included.

Refund and Withdrawal

Full refund will be made by mail if a workshop is canceled due to unerenrollment.

If a student wishes to withdraw from a workshop, the Records Office must be notified in writing by mail, or in person during the regular office hours. Notifying the instructor or ceasing to attend class does not constitute official withdrawal. There will be an 80% refund for official withdrawal *after* the first workshop meeting and *before* the

second meeting. There will be a 60% refund after the second workshop meeting, and before the third. After the third workshop meeting, there will be no refund.

Refund Schedule

After:

First meeting	80%
Second meeting	60%
Third meeting	NO REFUND

Exceptions

There are NO REFUNDS for workshops with schedules covering *less than three weeks* unless withdrawal is effected prior to the beginning of the workshop. In cases of withdrawal prior to the beginning of a workshop, a full refund will be processed once the Records Office is notified in writing or in person.

Other Important Information

Cancellations and Changes

It sometimes becomes necessary for the Division to cancel, postpone or combine workshops or to change instructors. Changes are usually kept to a minimum.

Weather cancellations are announced over local radio stations.

Workshop Locations

Most workshops will take place in Amherst. Exact locations will be announced by mail once students have registered.

Reading Material

Reading material information may be obtained from the instructor on the first night of the workshop.

Supplies/Expenses

Some workshops require supplies which are to be paid for by each participant if he or she chooses to have them. The estimated cost of these supplies is listed at the end of the workshop description. Since expense money is estimated and optional, it is not to be included in workshop and registration fees, and students should not pre-pay.

Parking

After 6 p.m., there are no parking restrictions in *legal* parking places.

Calendar

	July 10-September 15	Mail Registration
	After September 15	Walk-In Registration (space-available basis)
Monday	September 25	Workshops begin (unless otherwise noted in the workshop description)
Monday	October 9	Holiday (Columbus Day)
Wednesday	October 11	Monday workshop schedule will be followed (Wednesday workshops *do not* meet)
Wednesday	November 22	Thanksgiving recess begins after last class
Monday	November 27	Workshops resume
Saturday	December 9	Workshops end (Workshop schedules vary—consult workshop description)

Schedule of Workshops

MONDAY

Bobbin Lace
Calligraphic Letter Forms
Fiddle: Beginning
Figure Drawing
Folk Guitar
Folksongs
French
Gourmet Cooking
Korean Karate
Men and Women
Mind Puzzles
Self Defeat/Self Actualization
Sign Language/Finger Spelling: Beginning
Stained Glass: Advanced
Taking Control
Woodcarving

TUESDAY

Art as Self Discovery
Bicycling
Darkroom Photographer: Basic
Designing a Solar Greenhouse
Fiction Writing
Fiddle: Advanced Beginning
Garment Design/Construction
Information Gathering Techniques
Italian
Jazz/Rock Guitar: Intermediate
Math Workshop/Span/Eng
Playwriting
Pointers for Parents
Print Collecting/Appreciation
Sign Language/Finger Spelling: Advanced
Spanish
Spec Ed/Paraprofessional Training
Writing for Self Enrichment

WEDNESDAY

Calligraphy: Basic
Creative Drama
Creative Glassblowing
Darkroom Photographer: Intermediate
Doubleweave Pickup
Dreams/Dream Interpretation
Food Additives
Furniture Stripping/Refinishing
German
Hatha Yoga: Beginning and Advanced
Jazz/Rock Guitar: Basic
Job Interviewing Skills
Macrame: Basic
Math Anxiety/Learning Skills
Methods in Collective Management
Monoprinting
Photography: Basic
Resume Writing
Shiatsu Massage: Introduction
Studio Painting
Swedish
Tap Dancing: Beginning and Advanced
Traditional Foods
Upholstery
Weaving

THURSDAY

Appliance Repair
Ballroom Dancing: Beginning and Advanced
Bookkeeping: Basic
Drawing Composition
Photography: Basic
Real Estate License Preparation
Shiatsu Massage: Intermediate
Shorthand
Tap Dancing: Advanced
Textile Design: Fundamentals
Tropical Plant Care

MONDAY/WEDNESDAY

Aerobic Dance
Ballet: Beginning
Dance Exercise
Tennis: Beginning

TUESDAY/WEDNESDAY

Death Education

TUESDAY/THURSDAY

Jazz Dance: Beginning
Modern Dance: Beginning and Advanced Beginning
Pottery
Tennis: Beginning and Intermediate

WEDNESDAY/THURSDAY

Grantwriting/Non-Profit Accounting

SATURDAY

Art in Boston
Batik
Issues in Career Planning
Stained Glass: Basic

ODD SCHEDULES
(check workshop descriptions)

Children's Creative Response/Conflict
LSAT Preparation
Rock Climbing: Introduction

Workshop Descriptions

RTS & CRAFTS

RT AS SELF-DISCOVERY Emily Kahn K001

c. I Tuesday, 7-9 p.m., 10 weeks, begins September 26, $46.

r students with little or no art background. Making art in order to rn more about yourself, and communicating ideas and feelings rough visual means. Different art-making processes, dream images, tobiographical collage and sculpture. Discussions include work by men artists, past and present, and the basic issues in art and the minist art movement.

RT IN BOSTON Leslie Kramer K002

c. I Saturday, 9 a.m.-6 p.m., September 30, $33.

s trip to acquaint people with the current Boston art scene. In- des the Institute of Contemporary Art and a variety of galleries the Back Bay area to familiarize people with the range of area ists and contemporary art styles. Prints and printmakers emphas- d. (Expenses: Lunch in Boston, if purchased.)

TIK Hyde Meissner K003

c. I. Saturday, 9 a.m.-noon, 10 weeks, begins September 30, $66.

phasis on mastering basic techniques of the medium; developing d transferring designs, controlling wax applications with brushes d tjanting tools, using cold water dyes, methods of presenting ished batiks. (Expenses: $12.)

BBIN LACE: "VADSTENAKNYPPLING" Margareta Tristan K004

c. I Monday, 6:30-8:30 p.m., 10 weeks, begins September 25, $46.

dstena is an old town on the west coast of Sweden, where nuns in Vadstena nunnery used to make lace about 100 years ago. Master- this art is the subject of this workshop. Work at your own speed d learn 10 different patterns, the first very simple. All ages from 10 rs are welcome. (Expenses: $5-$25.)

LLIGRAPHIC LETTER FORMS James Sadler K005

c. I Monday, 7:30-9:30 p.m., 10 weeks, begins September 25, $45.

er exploring the stylistic changes in calligraphy since early Rome, h student chooses an alphabet to study in detail. Assignments in- ase awareness of individual alphabets. Concludes with individual jects. (Expenses: $5.)

LLIGRAPHY: BASIC James Sadler K006

. I Wednesday, 7:30-9:30 p.m., 10 weeks, begins September 27, 5.

ic italic alphabet; advanced alphabets introduced. Individual ention. (Expenses: $5.)

EATIVE GLASSBLOWING Joseph Walas and Larry Williams K007

. I Wednesday, 6:30-9:30 p.m., 4 weeks, begins September 27, 9.

roduction to basic novelty and ornamental glassblowing using a d torch. Demonstrations given; students create simple novelty ns. (Expenses: $5-$10.)

AWING COMPOSITION Mona Waterhouse K008

I Thursday, 7-10 p.m., 6 weeks, begins September 28, $41.

elops the basic skill of observation and composition. A founda- n for a personal approach to drawing. Beginning and advanced dents welcomed. (Expenses: $5.)

FIGURE DRAWING Jennifer French K009

Sec. I Monday, 7-9:30 p.m., 10 weeks, begins September 25, $55.

For those with little or no experience in drawing the figure. Essential methods of drawing the figure; contour, gesture, modeling; study of body structure and proportion. Emphasis on intensive drawing exercises to improve individual observation. Live model for each class session. (Expenses: $20.)

FURNITURE STRIPPING AND REFINISHING Howard J. Arkush K010

Sec. I Wednesday, 7-9 p.m., 5 weeks, begins September 27, $45.

Various woods of antique and modern furniture and methods of refinishing. How to prepare furniture for refinishing and simple repair. work. Students should bring to first meeting: a small piece of furniture, one half-gallon paint remover (semi-paste), sleeve of grade No. 1 steel wool, two sheets of No. 320 grade wet and dry sandpaper, inexpensive 1½" paint brush, and thin rubber gloves. Meets in Greenfield.

MACRAME: BASIC Elaine Barker K011

Sec. I Wednesday, 7-9 p.m., 10 weeks, begins September 27, $46.

For beginners. Basic knots such as square, half hitch, clove hitch and their variations; Chinese crown, Josephine, cavendoli and nautical. Basic construction of jewelry, plant hangers, wall hangings and shapes. Students work on items in class and are encouraged and assisted in special interest projects. (Expenses: $10.)

MONOPRINTING Leslie Kramer K012

Sec. I Wednesday, 7-10 p.m., 3 weeks, beings September 27, $24.

Monoprinting or monotype is a combination of painting, drawing, and printmaking which produces a unique, non-reproducible image. Workshop includes subtractive, additive, and transfer-printing techniques. Students work in color as well as black and white. A method of printing not requiring a press is demonstrated. No previous art experience required. (Expenses: $10-$15.)

POTTERY Fred Englander K013

Sec. I Tuesday and Thursday, 7:30-9:30 p.m., 10 weeks, begins September 26, $85.

Use of potters wheel, hand-building techniques and application of glazes to stoneware clay fired to cone 10 in reduction atmosphere. Includes opportunity to fire eight pots. Additional pots may be fired for a minimal fee. (Expenses: $5.)

PRINT COLLECTING AND APPRECIATION Leslie Kramer K014

Sec. I Tuesday, 7-9 p.m., 4 weeks, begins September 26, $21.

For those who would like to collect art on a modest budget. Lecture discussions on what to look for when buying an original print. Visits to a local museum or gallery uncover the range of artwork in this area. Topics include: the difference between etching, lithography and serigraphy; what determines the value of an original print; care and display. One field trip to be arranged. Recommended reading: Zigrosser, *A Guide to the Collecting and Care of Original Prints.*

STUDIO PAINTING Linda Forte K015

Sec. I Wednesday, 7-10 p.m., 10 weeks, begins September 27, $65.

Basic studio in beginning and advanced painting. Self-expression, color, design, dimension and composition emphasized. Attention to approaching the canvas, making decisions on color and theme, supplies and stretching the canvas. Please bring white paper, scissors, craypas and pastels to the first meeting. (Expenses: $15.)

WEAVING Mary Canner K016

Sec. I Wednesday, 7-10 p.m., 10 weeks, begins September 27, $65.

Open workshop with individualized instruction to support beginning and intermediate students in technical and creative aspects of weaving. Students may work on four-harness looms constructed in class or available on a rental basis. Emphasis on both mastery of technical skills and exploration of creative possibilities. (Expenses: $10-$15.)

UPHOLSTERY Walter Rupp K017

Sec. I Wednesday, 6:30-9:30 p.m., 10 weeks, begins September 27, $65.

Step by step reupholstering of typical piece of furniture. Demonstrations enable students to work independently. Questions and problems handled on an individual basis. (Expenses: $10.)

LEVERETT CRAFTSMEN AND ARTISTS

The following workshops are presented in cooperation with Leverett Craftsmen and Artists, a non-profit educational organization dedicated to promoting public education.

DOUBLEWEAVE PICKUP WORKSHOP Deborah Robson K018

Sec. I Wednesday, 7-10 p.m., 4 weeks, begins September 27, $29.

Introduces Finnish doubleweave pickup and its variations of design principles based on color. The technique includes drafting, weaving and manipulation of the series of pickup sticks. Also includes: designing for doubleweave (two colors), exploring technical possibilities (incorporating doublecloth with doubleweave pickup) and exploring color possibilities in conjunction with pickup design. Students must have access to a four-harness portable loom, and be able to dress loom and read drafts. Information on loom rental is available from instructor at first meeting. Meets in Leverett. (Expenses: $20-$40, depending upon access to loom.)

FUNDAMENTALS OF TEXTILE DESIGN Deborah Kruger K019

Sec. I Thursday, 7-10 p.m., 10 weeks, begins September 28, $65.

Introduction to designing prints for fabrics. Design, color, scale, layout, repeats, sources of design inspiration and fabric-painting techniques. Includes work in class and home projects with critiques of both. Students work toward putting together a portfolio of textile designs. (Expenses: $10.)

GARMENT DESIGN AND CONSTRUCTION BASED ON ETHNIC PRINCIPLES Deborah Robson K020

Sec. I Tuesday, 7-10 p.m., 8 weeks, begins September 26, $53.

Students design and construct at least one garment. Complexity of each project depends on the student's background and ambition. Discussion of existing garments, pattern and book resources, types of fabrics and their characteristics, design of garment, design of garment's component pieces, types of fibers and ways to use them structurally and decoratively. Some experience with clothing construction and textile work helpful. Meets in Leverett.

STAINED GLASS: BASIC Jane DiRusso K021

Sec. I Saturday, 9 a.m.-noon, 8 weeks, begins September 30, $65.

A brief history of stained glass, glass types and their applications in windows, lamp shades and other art forms. Covers both lead and copper foil methods of stained glass, cutting techniques, designing with glass and construction of flat and three-dimensional pieces. Students must have access to their own tools. Meets in Shutesbury. (Expenses: $10-$50, depending upon access to tools; cost mainly for tools.)

STAINED GLASS: ADVANCED Jane DiRusso K022

Sec. I Monday, 6:30-9:30 p.m., 8 weeks, begins September 25, $65.

Advanced techniques in glass. Studio facilities are open to explore on an individual basis. Copper foil and leading techniques, acid etching, bending, mold making, painting and firing are open, subject to interest. Students must provide their own tools and must have prior experience with stained glass techniques. Meets in Shutesbury. (Expenses: $20.)

WOODCARVING Karyl Lynch K023

Sec. I Monday, 7-10 p.m., 8 weeks, begins September 25, $53.

Emphasizes relief carving for beginners. Introduces styles and methods of woodcarving; wood sources, types, and availability; carving techniques; tool sharpening; finishing and sanding techniques; wood di ing; use of power tools in carving; resources. Students work with tools and wood to gain an understanding of techniques and proble as a basis from which to work. Meets in Leverett. (Expenses: $2

COMMUNITIES IN ACTION

Communities in Action is a program designed to meet some of the training needs of community organizations. The following worksh are intended for board members, staff and volunteers of citizen co cils, and non-profit community organizations of all types.

Communities in Action and other training workshops can be offer by your organization in your own community. For information, contact Stan Rosenberg, (413) 545-2040.

GRANTWRITING AND NON-PROFIT ACCOUNTING: PROBL SOLVING Rick Feldman and Margot Willett K024

Sec. I Wednesday and Thursday, 6:30-9:30 p.m., September 27 a 28, $19.

A conceptual orientation to the basics of grantwriting for organiz or individuals representing non-profit groups. Analysis and develo ment of budgets and bookkeeping systems included. Open *only* t people with present problems related to fundraising, grantwriting budgeting for non-profit organizations. Prerequisite: Current ex perience with non-profit organizations.

INFORMATION GATHERING TECHNIQUES FOR CITIZEN GROUPS Duane Dale K025

Sec. I Tuesday, 7-10 p.m., 3 weeks, begins October 3, $23.

Many citizen groups find they need to gather information in orde to identify community needs, document problems or make decis about strategy. Prepares students to identify information needs, tap library materials and run community surveys. Case example drawn from the participants.

METHODS IN COLLECTIVE MANAGEMENT David Magnani

Sec. I Wednesday, 7-10 p.m., 2 weeks, begins September 27, $1

First session focuses on definitions, advantages and disadvantage managing an organization collectively. Topics include: role of s scales, division of work, internal and external accountability and interpersonal relations. Second session focuses on possible solut and systems which help deal with problems of collective manage such as meeting facilitation, communication, task assignments, personnel selection and creeping informal hierarchy.

TAKING CONTROL: THE BASICS OF CITIZEN ADVOCACY Susan Kohler Gray of the Massachusetts Public Interest Rese Group K027

Sec. I Monday, 7-9 p.m., 2 weeks, begins September 25, $13.

Basic advocacy skills for turning gripes into results. Practical pr lems from community groups and individuals are the basis for an sis and strategy development. Learn how to make the "system" work for you. Skills in effective letter writing, interviewing, negotiating and lobbying developed through action and video fe Emphasizes the assertive approach.

CONVERSATIONAL FOREIGN LANGUAGES

FRENCH Elise Mullen K028

Sec. I Monday, 7-9 p.m., 10 weeks, begins September 25, $46.

Intensive workshop designed for travelers to French-speaking c Required reading: Logan and LeRoux, *French Conversational Practices, $5.*

MAN Susan Bailey K029

l Wednesday, 7:30-9:30 p.m., 10 weeks, begins September 27,

hose who want to learn enough conversational German to get in a German-speaking country. Those with some knowledge erman also welcome. Spoken German, with phrases and ex- ions. Minimum of grammar.

IAN Anthony Terrizzi K030

l Tuesday, 7-9 p.m., 10 weeks, begins September 26, $45.

hose who wish to understand and speak Italian for traveling or ne enjoyment of learning a second language. Conversation with imum of grammar. Adapts to current or projected needs and ests of students. No previous knowledge of the language re- d. Required reading: Hall and Bartoli, *Basic Conversational n, $13.*

NISH Jose Martinez K031

l Tuesday, 6:30-8:30 p.m., 10 weeks, begins September 26, $47.

hose who wish to understand, read and speak Spanish in a ish-speaking country or community. Spoken Spanish, with es and expressions. Some grammar.

DISH Margareta Tristan K032

l Wednesday, 6:30-8:30 p.m., 10 weeks, begins September 27,

spoken Swedish for travelers to Sweden. Born and educated veden, the instructor provides popular vocabulary with a mini- of grammar. Make friends and enjoy the smorgasbord with nsk flair. Learn to find your way around a 100-year-old town, elect a train to a small village. Those with some knowledge of dish also welcome.

NCE

OBIC DANCE Donna Potter K033

l Monday and Wednesday, 7-8 p.m., 10 weeks, begins September 45.

ness approach to dance combining the aerobic conditioning bene- f jogging with the flexibility and control of dance. Combines the f both worlds. A sincere commitment to weight control, fitness ood health emphasized.

LET: BEGINNING Susan Mahler K034

Monday and Wednesday, 6-7:30 p.m., 10 weeks, begins mber 25, $65.

he interested person who has had little or no dance experience as lots of enthusiasm. Depending on the level, offers the basics llet at a comfortable speed. Prepares for additional ballet study. stent attendance encouraged.

LROOM DANCING: BEGINNING Carolyn Nims K035

Thursday, 7-8 p.m., 10 weeks, begins September 28, $25.

amental steps of ballroom dancing, including fox trot, waltz, , rhumba, tango, cha cha, hustle and disco. Open to begin- nd intermediates who wish to learn more advanced work.

LROOM DANCING: INTERMEDIATE Carolyn Nims K036

Thursday, 8-9 p.m., 10 weeks, begins September 28, $25.

nuation of Ballroom Dancing: Beginning with advanced com- ons added to steps. Includes warm-up with emphasis on relax- , rhythm and coordination. Clothes should allow comfort and mum movement. For couples or singles. Prerequisite: Ballroom ng: Beginning, or permission of instructor.

CE EXERCISE Andrea Taylor K037

Monday and Wednesday, 7:30-9 p.m., 10 weeks, begins mber 25, $65.

he individual who seeks an environment less structured than a class; emphasis on corrective exercises and exercises to release tension. Requires enthusiasm and an enjoyment of getting and stay- in shape. Consistent attendance encouraged

JAZZ DANCE: BEGINNING Donna Potter K038

Sec. l Tuesday and Thursday, 6-7:30 p.m., 10 weeks, begins September 26, $65.

For those with little or no dance training; emphasis on enjoyment and learning basic skills of jazz dance training with routines practiced following warm-ups. Techniques drawn upon are Alwin Nikolais, Horton and Luigi. Consistent attendance encouraged.

MODERN DANCE: BEGINNING Beth Hirschhaut K039

Sec. l Tuesday and Thursday, 7:30-9 p.m., 10 weeks, begins September 26, $65.

Provides awareness of body and increases control, flexibility and stamina through the Horton, Cunningham and Limon techniques. Focus on discipline and pure enjoyment of movement. No previous training necessary; consistent attendance encouraged.

MODERN DANCE: ADVANCED BEGINNERS Donna Potter K040

Sec. l Tuesday and Thursday, 7:30-9 p.m., 10 weeks, begins September 26, $65.

Provides awareness of body and increased control, flexibility and stamina through the Alwin Nikolais dance technique. Focus on discipline and pure enjoyment of movement. No previous dance training necessary; consistent attendance encouraged.

TAP DANCING: BEGINNING Janny Densmore K041

Sec. l Wednesday, 6-8 p.m., 10 weeks, begins September 27, $45.

For those with little or no tap-dancing experience. No special talents necessary. Begins with basic steps of tap, combining steps into routines. Emphasis on moving in rhythm to musical selections from the 30s and 40s. Class open to all; be prepared for vigorous fun. (Expenses: $3-$10.)

TAP DANCING: ADVANCED Janny Densmore K042

Sec. l Thursday, 6-8 p.m., 10 weeks, begins September 28, $45.

A sequel to Beginning Tap for people who have had tap dancing experience. Variations of all rudiments presented in beginning tap, including time steps, rhythm steps and syncopated tap. Emphasis on development of personal style, signature steps and individual choreography. Movement is vigorous to musical selections from 1930 to present. (Expenses: $3-$10.)

EAST/WEST FOUNDATION

The following workshops are presented in cooperation with the East/West Foundation of Boston.

SHIATSU (ACUPUNCTURE) MASSAGE: INTRODUCTORY Ken Burns K043

Sec. l Wednesday, 6:30-9:30 p.m., 8 weeks, begins September 27, $55.

Acupuncture (Shiatsu, or finger pressure) massage, unlike Swedish massage, aims at treating illness or imbalance within the body by readjusting the flow of ki or life energy along the acupuncture points and meridians. Requires no special knowledge or instruments, and has been commonly practiced in the Orient for thousands of years. Workshop covers basic Oriental methods of diagnosis and how to locate important points. Students learn to give a complete massage.

SHIATSU (ACUPUNCTURE) MASSAGE: INTERMEDIATE Ken Burns K044

Sec. l Thursday, 6:30-9:30 p.m., 8 weeks, begins September 28, $55.

Refinement of massage techniques, preparing students to practice and teach the art of massage. Prerequisite: completion of Introductory Acupuncture Massage workshop.

FOOD

FOOD ADDITIVES: A CONSUMER'S GUIDE Kathy Mierzwa K045

Sec. I Wednesday, 7:30-9 p.m., 8 weeks, begins September 27, $30.

Background information for decision-making about additives based on individual life style, eating preferences and economics. Concentrates on the major issues of interest to consumers: safety and testing, the FDA, modern food processing techniques, nutrition, labeling laws, functions of additives and fabricated foods. Lecture and discussion. No chemistry required.

GOURMET COOKING: AN INTRODUCTION James Dunn K046

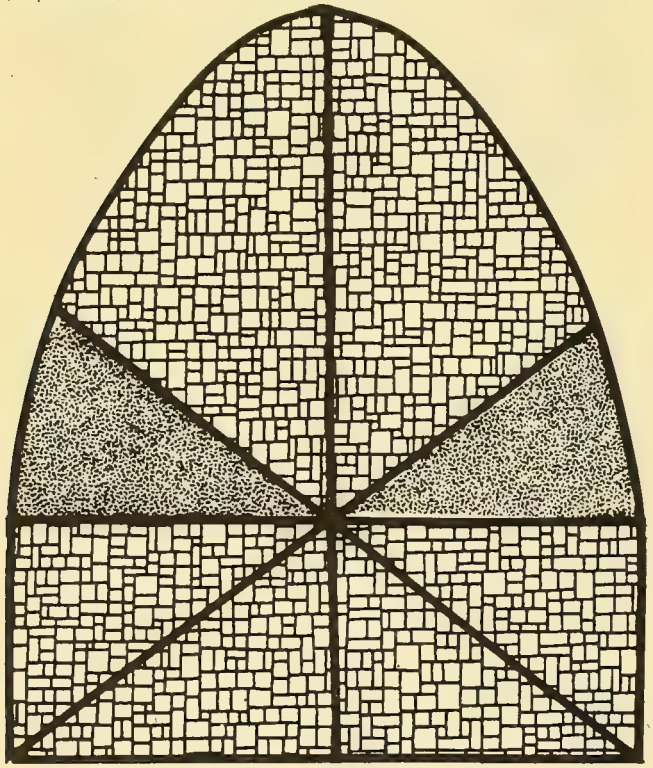
Sec. I Monday, 7-10 p.m., 10 weeks, begins September 25, $100.

The foundations, techniques, science and art of fine cooking. How to create various dishes with little or no recipe guidance. Primarily demonstration with a small amount of class participation, especially in the basic skills. Instruction and food creation closely follows that of Charles August Escoffier, considered "the Chef of Kings and King of Chefs." (Expenses: $5-$10 per session for food.)

TRADITIONAL FOOD FOR THE NEW AGE Paula Gallagher K047

Sec. I Wednesday, 7-10 p.m., 8 weeks, begins September 27, $55.

Recapture the art of cooking and eating principal foods. Experience the centering qualities of corn, oats, rye, barley, rice, wheat, millet and buckwheat. Savor the richness of sauteed, baked, steamed and tempura land and sea vegetables. Develop a taste for local wild vegetables collected and prepared during the workshop. Learn to create high-quality protein by tastefully combining grains, beans, seeds and nuts. Discover alternatives to meat and dairy products by learning to make and cook tofu and seitan in a variety of ways. Holiday cooking explored. Techniques for making desserts using fruits, nuts, grain malt, syrups. Practical areas are explored: how to make the transition to a more health-giving diet, how to raise your family's consciousness concerning food and health, how to lose and maintain weight, how to use low technology tools (hand mills, grinders.) (Expenses: $5.)



Stained Glass

Enjoy the history and techniques of Stained Glass, whether you're a beginner or an old-timer! Details on page 42. . . .

LANGUAGE AND WRITING

FICTION WRITING Lynn Nakkim K048

Sec. I Tuesday, 7-9:30 p.m., 8 weeks, begins September 26, $46.

Participants read and critique short stories by class members. Stude offer criticism and feedback to each other on the craft of writing. Innate talent is the only requisite for the writing of fiction; skills an techniques can be developed and perfected. Recommended reading *The Craft of Fiction.*

PLAYWRITING Michael Kennedy K049

Sec. I Tuesday, 7:30-9:30 p.m., 10 weeks, begins September 26, $4

Approaches to plot, character, dialogue and theatrics discovered through collective creation in the workshop. Participants collabora in actual dramatic invention as an exercise to stimulate individual creativity. They may submit problems in their work to the same process or present scenes for reading and discussion.

WRITING FOR SELF–ENRICHMENT Brooks Robards K050

Sec. I Tuesday, 7-10 p.m., 10 weeks, begins September 26, $65.

Use of writing for self-expression and self dicovery. Includes keeping journals and trying different modes of writing, such as autobiography, short story, poetry, drama, songs, letters. Writing interests of class determine the areas covered; emphasis on sharing each other's work.

SIGN LANGUAGE AND FINGER SPELLING: BEGINNING Stanley Patrie K051

Sec. I Monday, 7-9 p.m., 10 weeks, begins September 25, $45.

Manual communication as used by most deaf people in this country Includes brief history of the language of signs, background information on deafness and effects on those born deaf or who have lost their hearing later in life. Conversation with totally deaf people, including the instructor. Required text: Lottie Riekehot, *Talk to the Deaf, $6.50,* available from the instructor.*

SIGN LANGUAGE AND FINGER SPELLING: ADVANCED Stanley Patrie K052

Sec. I Tuesday, 7-9 p.m., 10 weeks, begins September 26, $45.

American Sign Language (AMESLAN) makes use of the same signs as Signed English, which is taught to beginners, but the order in which these words are put together is very different. Syntax and tense are largely ignored and sentences greatly shortened. Require reading: Madsen, *Conversational Sign Language II, $7,* available in class from instructor.*

** This workshop has been approved for two CEUs which will be awarded to all participants attending all sessions (20 required cont hours). The CEU is designed for in-service professionals and non-p fessionals who maintain a record of their participation in approved non-credit continuing education programs. For a more complete description of CEUs, see* **Continuing Education Units** *under Program Alternatives.*

MATH SKILLS

MATH ANXIETY/MATH LEARNING SKILLS Dennis Anello an Jill Ullian K053

Sec. I Wednesday, 7-10 p.m., 10 weeks, begins September 27, $67

For those who have previously experienced difficulty and/or anxi in attempting to learn math. A supportive, safe environment enco aging dealing with anxiety and/or blocks, so that the math can be grasped. Not a review of the formulas of basic math. Stresses pro and developing analytical thinking skills and strategies for learning and understanding math. Work with arithmetic processes, fractio decimals, percentages, graphs, word problems and basic algebra.

TH: BASIC CONCEPT AND SKILLS/BILINGUAL WORKSHOP IN SPANISH/ENGLISH Mauricio Lerner K054

I Tuesday, 7-8:30 p.m., 10 weeks, begins September 26, $20.

ory and development of basic math application. Arithmetic, bra, geometry, trigonometry on an introductory level. Some lications of math in the "real world." Workshop is bilingual: nish/English. Helps prepare students for the High School Equi- ncy exam in mathematics.

ND PUZZLES: TEASERS AND GAMES Dennis Anello and Jill Ullian K055

I Monday, 7:30-10 p.m., 8 weeks, begins October 2, $45.

ne of the "fun" aspects of the thinking process; simultaneous mination and improvement of analytical thinking skills. Students k in small groups, each with a facilitator to offer feedback and gestions for thinking-problem solving processes. Examines the lications of students' work on day-to-day decision-making pro- es. (Expenses: $7.)

OVEMENT

THA YOGA: BEGINNING Adele Mack K056

I Wednesday, 6-7:30 p.m., 10 weeks, begins September 27, $35.

ed on the premise that good health is discipline. Explores Hatha a asanas and pranayama. Leads to relaxation at will, greater ers of concentration; includes a review of proper nutrition.

THA YOGA: INTERMEDIATE Adele Mack K057

I Wednesday, 8-9:30 p.m., 10 weeks, begins September 27, $36.

those with some previous experience in yoga. Emphasis on the siology of asanas and pranayama and their therapeutic value. bination of stretches and breathing exercises with relaxation, niques to release tension and increase energy.

REAN KARATE: THE ART OF TAE KWON DO Giles Hopkins K058

I Monday, 7-9 p.m., 10 weeks, begins September 25, $46.

an Karate, one of the most ancient martial arts, was first develop- s a means of defense at a time when weapons were outlawed. many reasons, the study of Kwon Do continued today as a od of self-defense, exercise and discipline for the mind and y; to achieve speed, power, balance, accuracy and focus in n. Tae Kwon Do is both a science of weaponless combat and t of graceful movement.

MSIC

DLE: BEGINNING Thomas Sample K059

I Monday, 6:30-8 p.m., 10 weeks, begins September 25, $40.

those with no previous experience with the fiddle. Bowing tech- e and rhythm emphasized. Includes tunes from New England, French Canadian and southern United States traditions. Students d have access to a fiddle and be able to read music.

FIDDLE: ADVANCED/BEGINNING Thomas Sample K060

Sec. I Tuesday, 6:30-8 p.m., 10 weeks, begins September 26, $40.

For beginners with some experience playing the fiddle (or other stringed instrument). Includes tunes from New England, Irish, French Canadian, and southern United States traditions. Students should have access to a fiddle.

FOLK GUITAR/FINGER STYLE: BASIC Vincent Mitchell K061

Sec. I Monday, 7-9 p.m., 10 weeks, begins September 25, $47.

Guitar care, tuning, picking, technique, notereading, basic chording, basic theory, tablature, back-up picking, capo, picking styles; includes one private lesson, song swap and listening session. Songs used and taught during the workshop are traditional folk by Paul Simon, Joan Baez, Leonard Cohen, Woody Guthrie. *Sing Out* magazine articles.

FOLKSONGS OF OPPRESSION AND PROTEST Bill Dorris K062

Sec. I Monday, 7:30-9:30 p.m., 10 weeks, begins September 25, $46.

Covers 20th-century American folksongs of oppression and protest, from the Wobblies (*Pie in the Sky*) to the Dustbowl (*Tom Joad*) to the Women's Movement (*Debutante Ball*). General themes and song styles, specific issues and groups, and major songwriters (e.g., Joe Hill, Molly Jackson, Woody Guthrie, Utah Phillips, Hazel Dickens) are considered.

JAZZ/ROCK GUITAR: BASIC Vincent Mitchell K063

Sec. I Wednesday, 7-9 p.m., 10 weeks, begins September 27, $47.

Includes guitar care, tuning, plectrum technique, note reading, basic chords, position scales, 12-bar progressions, riff-writing, improvising, rhythm chords, lead chords, arrangement and listening. Songs from standard and popular repertoire. Guitar-player magazine articles. Access to guitar necessary.

JAZZ/ROCK GUITAR: INTERMEDIATE Vincent Mitchell K064

Sec. I Tuesday, 7-9 p.m., 10 weeks, begins September 26, $47.

Plectrum techniques, note reading, systems for rhythm and lead chords, position scales (major, minor, diminished, whole tone, pentatonic, blues) and improvising. Songs from popular repertoires and jazz, including Bonnie Raitt, Wes Montgomery, Django Reinhardt and other standards. Deals more with playing "head" arrangements and improvising than basic workshop. Required reading: Ferry and Mitchell, *Position Scales for Guitar,* available from instructor in class.

PERSONAL GROWTH

DREAMS AND DREAM INTERPRETATION: A JUNGIAN PERSPECTIVE Steven Bengis K065

Sec. I Wednesday, 7:30-9:30 p.m., 10 weeks, begins September 27, $45.

Introduces the basics of dream interpretation with specific emphasis on the work of Carl Gustav Jung. In addition to exploring the theoretcial approach of Jung, we will use specific dreams from case studies and provide space for participants to work in their own dream material (strictly voluntary). Students are asked to maintain a dream journal. Specific readings which correspond to weekly discussion. No psychological background required.

ISSUES IN CAREER PLANNING Bruce Parent and Garrett McAuliffe K066

Sec. I Saturday, 9 a.m.-noon, 1-3 p.m., 2 weeks, begins Saturday, October 21, $25.

Perspectives from which to view the process of career planning. Major issues or methods in career planning explored, discussed and experimented with in small groups. Written exercises, bibliographies and additional resources.

MEN AND WOMEN: PEOPLE WORKING NETWORK Donald Gelinas and Joan Eignor K067

Sec. I Monday, 9 a.m.-4 p.m., September 25, $20.

Organizations are people functioning collaboratively in defined roles. The roles must be defined by the results expected and the work performed if the organization is to maximize its potential of goal achievement. These roles, more and more, are being filled at all organization levels by both men and women. Most men and women have been enculturated with masculine and feminine role concepts which work against this process. Through case studies, role-playing, discussion and lecture, workshop deals with the issues arising as a result of role conflict.

POINTERS FOR PARENTS Anne Cernak K068

Sec. I Tuesday, 7-9 p.m., 4 weeks, begins September 26, $21.

Focus on home and community activities to teach children new skills and/or the practical application of skills taught in school. Skills such as language development, increasing vocabulary, following directions, listening skills, money, measurement, time and self-help emphasized. Parents guided in the management, organization and effective procedures to follow that strengthen school taught skills. Utilizes various homemade games, activities and materials using common household items.

SELF DEFEAT AND SELF ACTUALIZATION John Barbaro K069

Sec. I Monday, 7-9:30 p.m., 10 weeks, begins September 25, $56.

Self-defeating behaviors (habits and personal patterns of living that get in the way) systematically identified and their personal meaning studied. Underlying motivations and workable alternatives emphasized. Recommended reading: M. Schiffman, *Gestalt Self-Therapy;* S. J. Warner, *Self-Realization and Self-Defeat;* A. L. Lakin, *How to Get Control of Your Time and Life.*

Learn how to help your ailing appliances with a course teaching you the use of tools and their application—see page 47 for the details.

PHOTOGRAPHY

PHOTOGRAPHY: BASIC Richard Barrell K070

Sec. I Wednesday, 7-9 p.m., 10 weeks, begins September 27, $45, in Amherst.

Sec. II Thursday, 7-9 p.m., 10 weeks, begins September 28, $45, in Palmer, Massachusetts.

The use of cameras, lenses, filters, light meters and other equipment; darkroom procedures and equipment. Discussions of slides, 16 mm films, books, prints and work of major photographers. Demonstrations and handouts. Atmosphere relaxed; instructor works individually with students on projects. Individual darkroom work *not* included. Recommended reading: Upton and Upton, *Photography, $13.* (Expenses: $5-$10.)

THE DARKROOM PHOTOGRAPHER: BASIC SKILLS Carol Rec K071

Sec. I Tuesday, 7:30-10 p.m., 10 weeks, begins September 26, $75.

See your own images appear in the developer; enjoy learning how to make high-quality prints from your negatives. Clear, step-by-step demonstrations of film developing, contact sheets, enlarging and mounting of finished products followed by actual darkroom practice in each session. Includes slide-viewing and discussion of images and students' technical problems in shooting, developing and printir Each student produces good-quality mounted prints. For beginners. Size limited to five. Access to 35 mm camera required. All require chemicals and paper supplied. Students must bring one roll of expo black and white film to first meeting for developing.

THE DARKROOM PHOTOGRAPHER: INTERMEDIATE SKILLS Carol Reck K072

Sec. I Wednesday, 7:30-10 p.m., 10 weeks, begins September 27, $

Sharpening of photographic vision and improvement of the quality prints. Understanding imagery and applying the technical tools of good print-making. Explores the printing, combining discussion of photographs and actual darkroom practice in each session. Student work on their own negatives and prints. How to handle contrast, tonality, shape, space, scale, select printing papers and use toners to bring out expressive qualities in print. Varieties of presentation of final prints. Size limited to five. For students with basic darkroom skills. Access to adjustable 35 mm camera required. All required chemicals and paper supplied.

SKILLS

BOOKKEEPING: BASIC Kevin Aiken K073

Sec. I Thursday, 7-9 p.m., 10 weeks, begins September 28, $47.

Introduction to bookkeeping. Includes journal entries, cash disbursements, journals and statements. Payroll taxes and deductions. Cash basis and accrual basis. Areas of interest to students covered as time permits.

JOB INTERVIEWING SKILLS Joan Eignor, Garrett McAuliffe an Harry Neunder K074

Sec. I Wednesday, 7-9 p.m., November 8, $5.

You have only a half-hour to sell yourself—can you do it? Introduc tion to basic attitudes and techniques helpful on the job interview. Includes discussion, small groups and role playing.

RESUME WRITING Joan Eignor, Garrett McAuliffe and Harry Ne K075

Sec. I Wednesday, 7-9:30 p.m., October 4, $5.

You know you have the talents, you know you can do the job—ho do you look on paper? Your resume can open the door. Individua create a resume to be critiqued by workshop instructors.

SHORTHAND Nancy Aiken K076

Sec. I Thursday, 7-9 p.m., 10 weeks, begins September 28, $45.

Introduction to Gregg shorthand. The most frequently used alpha betical characters, brief forms and word-building principles. To facilitate notetaking for professional and personal use. (Expenses: $8.75 for shorthand kit.)

TEST PREPARATION

LAW SCHOOL ADMISSIONS TEST (LSAT): PREPARATION W WORKSHOP Michael D. Ford K077

Sec. I Monday, Tuesday, Wednesday and Thursday, 7-9 p.m., 2 w beginning September 25, and Saturday, October 7, 9 a.m.-1 p.m.,

Prepares students to take the LSAT exam administered on Octobe

1978. First eight sessions focus on: cases and principles, quanti- e comparison, data interpretation, practical judgment, logical oning (2 sessions) and writing ability. Saturday session includes inistration of a practice exam under timed condition to simulate al examination procedures. Required reading: *Law School ission Test,* Monarch Press, $5.95.

L ESTATE LICENSE PREPARATION David Ryan and Frances aporello K078

l Thursday, 7-10 p.m., 10 weeks, begins September 28, $75.

knowledge and practices in real estate. Terms, instruments and onships, both legal and financial, are stressed in an analysis of roperty brokerage, valuation and financing. Provides base from h the student can explore specialized areas of real estate and is cellent preparation for the Massachusetts Real Estate License ination. Textbook may be purchased in the first evening of for $15.

workshop has been approved for 3 CEUs which will be awarded l participants attending all sessions (30 required contact hours). CEU is designed for in-service professionals and non-professionals want to maintain a record of their participation in approved, credit continuing education programs. For a more complete ription of CEUs, see **Continuing Education Units** *under Program rnatives.*

D MORE. . . . .

LIANCE REPAIR Stuart Lerner K079

l Thursday, 6-8 p.m., 10 weeks, begins September 28, $46.

lop skills in tool use, understanding of machines and al experiences with many kinds of repairs. Includes both large small appliances, typewriters, sewing machines and other devices, ding to class interest, (bicycles, automobiles). Students must re a small tool collection. (Expenses: $10.)

CLING Bradford Knipes K080

Tuesday, 7-9 p.m., 10 weeks, begins September 26, $45.

pects of bicycling, with emphasis according to student interests. des clothing and equipment, construction, maintenance and , riding techniques, commuting, touring and racing. Format des lecture, discussion, demonstration and exhibition of rare les.

DREN'S CREATIVE RESPONSE TO CONFLICT Raymond isler K081

Thursday, 7-10 p.m., September 28 and Saturday, September a.m.-noon, $17.

eration, affirmation, communication and creative conflict reso- in a developmental progression. Through exercises students to build support, trust and cooperation in the classroom and home. Techniques practiced can also help in reducing adult ct.

TIVE DRAMA Susan Fleischman and Stuart Lerner K082

Wednesday, 6-8 p.m., 10 weeks, begins September 27, $46.

iences in imagination and creative dramatics. Structured ex- s, improvisations and prepared pieces. Developing new ways ng, feeling and understanding through work with poems, , stories and folktales. Adapts to the development of each t; beginners and those with theater or movement background come. Individually and as a group, students explore the use ech, sound, movement, music and pantomime as elements of tic expression.

H EDUCATION IN THE HELPING PROFESSIONS ymond Reisler K083

Tuesday and Wednesday, 7-10 p.m., September 26 and nber 27, $17.

n which death, as a reality of life, can find its way into the classroom. Students discuss methods and create materials to involve children in activities which expand their understanding of death. Increases the confidence and ability of teachers and parents to confront death as an important educational and personal subjects for open, informed and sensitive discussion.

DESIGNING YOUR OWN SOLAR GREENHOUSE Peter Kitchell K084

Sec. I Tuesday, 7-9 p.m., 10 weeks, begins September 26, $47.

Design of a solar greenhouse to heat itself and help heat a home. Based on recent research and examples of solar greenhouses, with or without manufactured components, owner-built or contracted. Includes site considerations for both freestanding and attached greenhouses, selecting or designing supplementary mechanical and greenhouse equipment, comparison of various materials for performance, durability and cost, review of class designs.

ROCK CLIMBING: INTRODUCTION Tony Contakos K085

Sec. I Thursday, 7-10 p.m., September 28; and Saturday & Sunday, 9 a.m.-4 p.m., September 30 and October 1, $45.

Introduction to technical rock climbing. One classroom session and two full days on the cliff. Indoor work includes knot-tying, belaying and safety -system instruction, transportation arrangements and general preparation for the weekend. Climbing instruction at Chapel Ledges in South Ashfield; demonstration and practice of various techniques: jam, counterforce and friction, climbing various routes, and belaying and rapelling. For anyone nine years or older; anyone 16 years must be accompanied by an adult. Hiking or work boots, transportation and a bag lunch needed. Dress for weather, rain or shine. Recommended reading: Robbins, *Basic Rockcraft.*

SPECIAL EDUCATION: PARAPROFESSIONAL TRAINING Leonard Basile K086

Sec. I Tuesday, 6:30-9 p.m., 10 weeks, begins September 26, $55.

For para-professionals, aides, volunteers, interns, parents and other interested non-professionals. An overview of the basic methods and handmade materials needed to assist the child with special needs. Techniques and methods include individualized instruction techniques, precision teaching and hierarchy of skills. A "hands-on" workshop offering the opportunity to experiment with, develop and adapt many of the ideas presented.

TROPICAL PLANT FAMILIES AND THEIR CULTURE John Tristan K087

Sec. I Thursday, 6:30-8:30 p.m., 10 weeks, begins September 28, $45.

A systematic review of important plant families for indoor and greenhouse cultivation. Offers acquaintance with many exotics. Cultural techniques, propogation and general plant care considered for selected groups, inlcuding gesneriads, bromeliads, begonias, orchids, cacti and succulents, foliage plants and tropical herbs. Some discussion of plant geography and the adaptation of plants for indoor use. Responsive to the specific needs of the class. Labs in a greenhouse setting. (Expenses: $5.)

TENNIS: BEGINNING Bill Yu K088

Sec. I Monday and Wednesday, 6:30-7:30 p.m., 3 weeks, begins September 11, $40.
Sec. II Tuesday and Thursday, 5-6 p.m., 3 weeks, begins September 12, $40.
Sec. III Tuesday and Thursday, 5-6 p.m., 3 weeks, begins October 3, $40.

Fundamentals of stroke dynamics--balance, coordination and rhythm. Includes forehand, backhand and serve; rules of the game, scoring and beginner's strategy. Open to anyone with a desire to learn and the motivation to practice. Bring a racket, a can of balls, and wear sneakers.

TENNIS: INTERMEDIATE Bill Yu K089

Sec. I Tuesday and Thursday, 6-7 p.m., 3 weeks, begins September 12, $40.
Sec. II Tuesday and Thursday, 6-7 p.m., 3 weeks, begins October 3, $40.

For those students who can already hit groundstrokes with some consistency. Rudiments of forehand and backhand, and techniques to achieve more powerful and accurate strokes. Introduces correct execution and use of the serve and the volley, match play and how to buy tennis equipment. Bring a racket, a can of balls and wear sneakers.

Map Key

CA=Central Residence Area
NA=Northeast Residence Area
OH=Orchard Hill Residence Area
SW=Southwest Residence Area

J-AD	J. Adams (SW)	C7
Q-AD	J.Q. Adams (SW)	C7
AEB	Agricultural Engineering Building	B4
ARND	Arnold	C3
ASTR	Astronomy	B3
BAKR	Baker (CA)	E4
BART	Bartlett	C5
BERK	Berkshire	C6
BERK DC	Berkshire Dining Commons	C7
BOWD	Bowditch	B3
BOWD LD	Bowditch Lodge	B7
BRET	Brett (CA)	D4
BRKS	Brooks (CA)	E4
BRWN	Brown	D2
BFLD	Butterfield (CA)	E5
CC	Campus Center	C4
CNCE	Cance (SW)	C7
CASH	Cashin	D1
CHAD	Chadbourne (CA)	E4
CH HSE	Chancellor's House	E4
CHEN	Chenoweth Lab	B3
CLRK	Clark	D4
CONS BLD	Conservation Bldg.	D4
COOL	Coolidge (SW)	C6
COTG-A	Cottage A	D3
COTG-B	Cottage B	D3
COTG-C	Cottage C	D3
CRAB	Crabtree (NA)	C3
CRAM	Crampton (SW)	C7
DHSE	Dickinson (OH)	E3
DKSN	Dickinson (Security)	B5
DRA	Draper	C3
DRAX	Draper Annex (Arts Extension Service)	C3
DURF	Durfee Conservatory	D4
DWGT	Dwight (NA)	C2
EDUC	Education Bldg.	C1
EMSN	Emerson	B7
ENGE	Engineering East	C3
ELAB	Engineering Lab	B3
EWC	Everywoman's Center	C5
FAC CL	Faculty Club	D4
FAR LD	Farley Lodge	B7
FERN	Fernald	D5
EUGE	Field (OH)	E3
FAC	Fine Arts Center	C5
FISH	Fisher Lab	E4
FLIN	Flint Lab1	B4
FRAN DC	Franklin Dining Commons (CA)	D4
FREN	French	D4
GOES	Goessmann Lab	C3
GDEL	Goodell	C5
GORM	Gormon (CA)	E5
GRES	Graduate Research Center	C3
GTWR	Graduate Research Tower	C3
GRAY	Grayson (OH)	E3
GNGH	Greenough (CA)	E4
GRIN	Grinnell Arena	B4
GUN	Gunness	B3
HAIG	Haigis Mall	C5
HAML	Hamlin (NA)	C2
HAMP DC	Hampshire Dining Commons (SW)	B6
HAS	Hasbrouck Bldg. (Continuing Education)	C4
HTCH	Hatch Lab	B3
INFI	Health Center (Infirmary)	D4
HERT	Herter	C5
HICK	Hicks	C5
HILLS	Hills	E5
HOLD	Holdsworth	B3
JAMS	James (SW)	B6
JOHN	Johnson (NA)	D2
KENN	Kennedy (SW)	C6
KNOW	Knowlton (NA)	C3
LEAC	Leach (NA)	C2
LEWS	Lewis (NA)	D2
UM LIB	Library	C4
LCLN	Lincoln Apartments	D6
LYON	Lyon (NA)	D3
MACH	Machmer	C4
MCK	Mackimmie	C7
MAHAR	Mahar Auditorium	D5
MKS MW	Mark's Meadow Elementary School	C1
MAR	Marshall	D3
MARX	Marshall Annex	D3
MRST	Marston	B3
MCNA	McNamara	
MEL	Melville (SW)	
MEM	Memorial Hall	
MDSX	Middlesex	
MOB	Mobile Music Classrooms	
MONT	Montague	
MOOR	Moore (SW)	
MOR	Morrill Science Center	
MN	Munson	
MNX	Munson Annex	
AFCA	New Africa House	
NEW	Newman Center	
NOPE	North Physical Education Bldg.	
OBS	Observatory	
CHAP	Old Chapel	
PAIG	Paige Lab	
PARK	Parking Garage	
PAT	Patterson (SW)	
PIER	Pierpont (SW)	
PWR	Power Plant	
PRIN	Prince (SW)	
PHB	Public Health Bldg.	
SBA	School of Business Administration	
SK	Skinner	
SOCL	South College	
STK	Stockbridge	
STUN	Student Union	
TBKX	Textbook Annex	
THAT	Thatcher (NA)	
THOM	Thompson	
THOR	Thoreau (SW)	
TOBN	Tobin	
UNIV	University Apartments	
VAN	Van Meter (CA)	
WASH	Washington (SW)	
NOAH	Webster (OH)	
WEX	West Experiment Station	
WHLR	Wheeler (CA)	
WHIT	Whitmore Administration Bldg.	
WILD	Wilder	
WYKI	Wysocki House	

A
B
C
D
E
To Wysocki House
Mark's Meadow Elementary School
Education
Montague
McNamara
Eastman Lane
North
Physical Education
Fieldhouse West
NORTHEAST
RESIDENCE
AREA
Governor's Drive
Astronomy
Engineering
Lab
Gunness
Graduate
Research
Center
Engineering
East
Marston
Observatory
Worcester Dining
Commons
Orchard Hill Drive
Thatcher
Physical Plant
Service Building
Experiment
Station
College A
College B
College C
Marshall and Apiary
ORCHARD HILL
RESIDENTIAL COLLEGE
Holdsworth
Hatch Lab
Bowditch
Stockbridge
Drapu Annex
(Arts Extension
Service)
Stockbridge Road
Agriculture
Engineering
(Farm Service)
Dumpus Center
Hasbrouck
Building
(Continuing
Education)
Conte Polymer
Building
Fisheries Lab
Parking Garage
Maintenance
Physical Plant
Central Stores
(Textbook Annex)
Power Plant
Student Union
Machmer
Photo Center
Thompson
University Library
Middle
Classrooms
South College
Carbone
Pond
Grinnell Arena
Dickinson
(Security)
Goodell
(Everywoman's
Center)
Old Chapel
Memorial Hall
Fine Arts Center
Commonwealth Avenue
Bartlett
Tobin
Hicks
Herter
Business
Administration
Haigis Mall
Mather
Auditorium
64
(Parking Office)
Munson
Munson
Annex
Boyden
Whitmore
Administration
Mid-Rise
Berkshire
Hampshire
Massachusetts Avenue
North Pleasant Street
Melville
Thatcher
Kennedy
Prince
James
Hampshire
Dining Commons
North Hadley Road
Lincoln Apartments
Coolidge
Emerson
Crampton
SOUTHWEST RESIDENTIAL COLLEGE
Mackimmie
Hampden
Dining Commons
Fearing Street
Stadium Drive
J.Q. Adams
Berkshire
Dining Commons
Patterson
Moore
J. Adams
Washington
Pierpont
Bowditch Lodge
Farley Lodge

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Division of Continuing Education
Hasbrouck
University of Massachusetts
Amherst, MA 01003

CAMPUS

Bob DeRusha
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University
of Massachusetts at Amherst

Division of Continuing
Education

Evening Courses & Credit-Free Workshops
Spring '79

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Continuing Education Offices

First Floor Hasbrouck
Telephone (413)549-4970

Special Assistant to the Provost
Sharon A. Keillor

Program Development
Kevin Greenan, Administrator

Credit Program
Charles Heller, Administrator

Credit-Free Workshop Program
Merilee Neunder, Administrator

Office of the Registrar
Irene Nagler, Registrar

Business Office
John Shea, Business Manager

All information contained herein is subject to existing University Regulations at the time of registration. *Coordination, design and production by Dan Part.*

Evening College/Academic Calendar

	December 1–January 12	Mail Registration
Wednesday	January 10	Early Registration/Springfield
Wednesday	January 10	Early Registration/Greenfield
Thursday	January 11	Early Registration/Palmer
Wed., Thurs., Fri. & Sat.	January 17,18,19 & 20	IN-PERSON REGISTRATION/AMHERST
Monday	January 29	Orientation for Continuing Education students and Faculty at Worcester Dining Commons, UMass, 8:30 p.m
Tuesday	January 30	FIRST DAY OF CLASSES LATE REGISTRATION BEGINS
Monday	February 5	End of Late Registration for **Graduate** Level University courses
Monday	February 12	END ADD/DROP PERIOD (WITHDRAW, NO RECORD) Last day to sign up for PASS/FAIL and AUDIT options
Tuesday	February 13	Beginning"W" Period (WITHDRAW WITH RECORD)
Monday	February 19	Holiday, No Classes
Tuesday	February 20	Monday class schedule will be followed for all day and evening classes
Monday	February 28	Last day to drop courses with a "W" (WITHDRAWN)
Wednesday	March 14	Last day to withdraw with a % refund Last day to pay Health Services and Health Insurance fees
Saturday	March 17	Spring Vacation begins after last class
Monday	March 26	Classes resume
Monday	April 16	Holiday, No classes
Wednesday	April 18	Monday class schedule will be followed for all day and evening classes
Wednesday	May 16	Last day of classes
Thursday	May 17	Final examinations begin
Wednesday	May 23	Last day of final examinations, semester ends
Saturday	May 26	Commencement
Wednesday	May 30	Summer session begins

Courses at all locations follow the above calender. In the event of a schedule conflict, the calendar of the School or College where a class is located will be followed.

REFUND SCHEDULE*

January 30-February 12	80%
February 13-28	60%
March 1-7	40%
March 8-14	20%
After March 14	NO REFUND

*Please see page for further information on refunds

Credit-Free Workshop Calendar

	December 11-February 9	Mail Registration
	After February 9	Walk-In Registration (space available basis)
Monday	February 26	Workshops begin (unless otherwise noted in the workshop description)
Saturday	March 17	Spring recess begins after last class
Monday	March 26	Classes resume
Monday	April 16	Holiday-no classes
Wednesday	April 18	Monday workshop schedule will be followed (Wednesday workshops do not meet)
Wednesday	May 16	Workshops end (workshop schedules vary-consult workshop description.)

REFUND SCHEDULE*

First meeting	80%
Second meeting	60%
Third meeting	NO REFUND

*see page 40 for further information.

Registration Information

December 1-January 12 — **Mail Registration**
$10 Registration Fee in addition to course fees*
All Evening College Courses

January 10 — **Early Registration/Springfield**
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Springfield Public Library
Time: Wednesday 5-7pm

January 10 — **Early Registration/Greenfield**
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Greenfield Public Library
Time: Wednesday 5-7 p.m.

January 11 — **Early Registration/Palmer**
$10 Registration Fee in addition to course fees*
All Evening College courses
Location: Palmer Public Library
Time: Thursday 5-7 p.m.

January 17, 18, 19 & 20 — **IN-PERSON REGISTRATION/AMHERST**
$10 Registration Fee in adition to course fees*
All Evening College courses
Undergraduate UMass/Amherst courses on a space-available basis.
Location: Campus Center Auditorium, University of Massachusetts
Time: Wednesday & Thursday 10 a.m.-4 p.m. & 6-8 p.m.
Location: Hasbrouck 113, University of Massachusetts
Time: Friday 10 a.m.-4 p.m.
Saturday 10 a.m.-2 p.m.

January 22-29 — **Registration Continues**
All Evening College courses *in which spaces remain*
Location: CE Records Office, Whitmore Administration Building
Time: Regular office hours, see page .

January 30-February 12 — **Late Registration/Amherst**
$15 Late Registration Fee in addition to course fees*
Evening College courses
Undergraduate UMass/Amherst courses (on a space-available basis, written permission required)
Location: CE Records Office, Whitmore Administration Building
Time: Mon. through Thurs. 9 a.m.-7 p.m.
Friday 9 a.m.-5 p.m.
Saturday 10 a.m.-1 p.m.

*$5 reduction in Registration Fee for those students registering *only* for Evening College courses held off the Amherst campus.

General Information

Registration & Records

Admissions

Any person who has graduated from high school or who has a certificate of General Educational Development is entitled to enroll in undergraduate courses offered by the Division of Continuing Education at the University of Massachusetts at Amherst. The Division assumes that the student will accurately assess his or her ability to take a college level course. It is the student's responsibility to observe prerequisites for individual courses. **Enrollment does not imply acceptance into a degree program.**

In accordance with University policy, University of Massachusetts students under academic suspension or academic dismissal may not enroll in courses offered by the Division of Continuing Education.

Mail Registration

1. To register by mail simply complete the registration form in this publication and mail with full remittance to:
   Evening College
   Division of Continuing Education
   University of Massachusetts
   Amherst, MA 01003
2. Make checks payable to **Continuing Education.** All registrations must include total course fees plus a one-time per semester on-campus registration fee of $10. Students registering *only* for courses held at off-campus locations need pay only a $5 registration fee.
3. Deadline for mail registration is a February 12 postmark.
4. Mail registrations will be confirmed by return mail in late January. Room assignments will be included in mail confirmation. Class sizes are limited, so register early.

Phone Registration

Students choosing to make payment by American Express, Master Charge or VISA may register for Evening College courses by telephone. Please select courses carefully, and telephone the Continuing Education Records Office at (413) 549-4970. Phone registrants must supply all personal data requested on the mail-in registration form (see page 22) and all credit card numbers including Master Charge Bank number and expiration date.

In-Person Registration

To register in person for Continuing Education courses listed in the catalog, come to one of the following locations:

Springfield
Springfield Public Library
Wednesday, January 10
5-7 p.m.

Greenfield
Greenfield Public Library
Wednesday, January 10
5-7 p.m.

Palmer
Palmer Public Library
Thursday, January 11
5-7 p.m

Amherst/University of Massachusetts
Campus Center Auditorium
Wednesday & Thursday, January 17 & 18
10 a.m.-4 p.m. & 6-8 p.m.

Hasbrouck 113
Friday
January 19
10 a.m.-4 p.m.
Saturday
January 20
10 a.m.-2p.m.

Registration, University Classes

Undergraduate

Regular *undergraduate* University of Massachusetts classes are available to Continuing Education students on a spac-available basis. To register for the available spaces, students must appear in person on January 17, 18, 19 or 20 (see preceding section for locations & times). A complete list of courses unavailable as of January 17 will be posted in the main corridor. Students are reminded tht the greatest number of individuals are expected to register on Wednesday, January 17. Students who plan to register in courses that do not usually meet capacity enrollment will find it more convenient to come on Thursday, Friday or Saturday, January 18-20. Students may not register for University classes prior to January 17 nor during the period January 22-29.

Graduate

The Division of Continuing Education *may not* register post-baccalaureate students in *graduate* University courses except for those graduate courses offered in Continuing Education's Evening College Program or Response Courses. Undergraduate students wishing to register for graduate University courses may usually do so with the written permission of the instructor. Post-baccalaureate students wishing to register for graduate courses must complete a "Non-Degree Student Application" form in accordance with the Graduate School policy, which states that "admission to the Graduate School is to be prerequisite to enrollment in any UMass graduate course for credit or audit." Applications are available from the Continuing Education Records Office, and from the Graduate Admissions Office, Graduate Research Center, University of Massachusetts, Amherst MA 01003. Registration for graduate University courses will take place January 29 at Boyden

Gymnasium, 9 a.m.-noon and 1:30-4:30 p.m. For further information concerning application and registration in graduate University courses, call the Graduate School at (413) 545-0024. The deadline for graduate University course registration is February 5.

Records and Registration Office Hours

Monday-Thursday 8:30 a.m.-7 p.m.
Friday 8:30 a.m.-5 p.m.
Saturday 10 a.m.-1 p.m.
(closed holiday weekends)
Phone: (413) 545-3653
New Location: Whitmore Administration Building

Change of Program

Students must formally notify the Division of Continuing Education, *in writing,* of all Adds, Drops and Withdrawals. Changing from one section to another of the same course is considered to be an Add and a Drop.

During the Add/Drop Period, January 30-February 12 students may add courses; students may also drop courses with no record. February 13-February 28, dropped courses will be noted on the student record with a "W" indicating Withdrawn. AFter February 28, students needing to drop a course must petition the Director of Continuing Education for approval of a late "W" Failure to use proper procedure could result in the recording of an "F" as a final grade. Students dropping courses during the Refund Period will receive refunds only if proper procedures as followed. Please check the Evening College Calendar for the Refund Schedule and additional notations of Add, Drop and Withdrawal periods.

Transcripts

Undergraduate

Permanent records of all undergraduate courses taken through the Division of Continuing Education are maintained by the Division, and are *not transferred automatically* to other offices on campus, such as the Registrar's Office or the Graduate Records Office. Requests for transcrpts must be made in writing either by letter or by official Transcript Request Card. Be sure to include the complete address of the person or institution to whom the transcrpts will be sent. When requesting a transcript sent to the Student Development Center, please specify if it is for a certification or credentials folder.

Official transcrpts will be sent only to Registrars or Recording Officers of institutions and to recognized business addresses *Student copies,* so designated, may be obtained by following the same procedure. The first two transcrpts will be issued free of charge. There will be a $2.50 charge for al lsubsequent transcripts. Address transcript requests to:

Transcript Request
Division of Continuing Education
Whitmore
University of Massachusetts
Amherst, MA 01003

Graduate

Effective Fall, 1976, permanent records of all graduate level courses taken through the Division of Continuing Education are maintained by the Graduate Records Office. The first two transcripts requested are issued free of chrge. There is a $2.50 charge for subsequent transcripts.

Address graduate transcript requests to:
Graduate Transcript Office
A247 Graduate Research Center
University of Massachusetts
Amherst, MA 01003

Cancellations

Continuing Education courses are funded solely by the fees students pay. Unfortunately, each semester there are courses in which enrollments are not sufficient to compensate faculty. These courses will be canceled at the discretion of the Division. To allow students time to enroll in other courses, decisions to cancel are made as soon as possible after in-person registration on the basis of the number of enrollments at the time. **Students are therefore urged to register as early as possible** in order to give as accurate an assessment as possible of the number of students who want to enroll in each course. Those students affected by course cancellations will be notified by mail. Students not wishing to enroll in an alternate course will receive a full refund as soon as it can be processed.

In the event of severe weather conditions or other emergencies, it may be necessary to cancel classes. Usually, when University day classes are canceled, evening classes are also canceled. Announcements will be made over local radio stations.

The Division reserves the right to cancel, add or combine sections of courses listed in this publication or to change instructors if necessary.

Credit/Degrees

Credit

Credit offered through the Division of Continuing Education is resident University of Massachusetts credit unless otherwise stated.

Degrees

The Division of Continuing Education offers part-time study which may lead to any undergraduate degree currently offered by the University of Massachusetts. Some degrees require enrollment in day courses. The Bachelor of General Studies Degree, also conferred by the University of Massachusetts, is a degree unique to the Division of Continuing Education. See BGS, page 21.

Matriculation Policy

Matriculation, or acceptance as a degree candidate, is based on a satisfactory performance (grade point average of 2.0 or better) in a specified number of University of Massachusetts courses, and declaration of a program of study.

Students not planning to transfer into the University's full-time program and who anticipate receiving a baccalaureate degree through the Division of Continuing Education should apply for matriculated status as soon as they have completed the appropriate number of credits. See chart on this page.

Bachelor of General Studies (BGS) students must have an approved BGS proposal on file with the Division of Continuing Education prior to matriculation. This requirement is waived for BGS/Criminal Justice, Fire Science and Liberal Studies students only.

Effective September 1, 1978, a $15 processing fee will be required of all matriculation applicants.

Further information and an application may be obtained from the Records Office of the Division of Continuing Education, located in Whitmore, 545-3653.

Matriculation Chart:

No. of Transfer Credits	No. of UMass/CE Credits
60 or more	15
48-59	18
36-47	21
24-35	24
12-23	27
0-11	30

Core Requirements

The University of Massachusetts core is a block of at least 33 credits within the specified 120 credits needed for graduation. Students must complete core requirements by taking certain specified courses in several fields of learning. An introduction to the humanities and fine arts, for instance, may be fulfilled by the successful completion of at least three courses chosen from those identified by the letter "C" after the course title. Core courses are distributed as follows:

B Core: 6 credits in written and spoken English, usually offered by the Rhetoric Department. (One course from Rhetoric 100 level, the other Rhetoric 110 or above). These courses are identified by the letter "B".

C Core: 9 to 12 credits in humanities or fine arts, generally from the departments of Afro-American Studies, Art, Classics, Comparative Literature, English, History, Linguistics, Music, Philosophy and designated foreign literature courses. These are identified by the letter "C".

D Core: 9 to 12 credits in social or behavioral sciences, generally from the departments of Afro-American Studies, Anthropology, Economics, Political Science, Psychology, and Sociology. These are identified by the letter "D".

E Core: 9 to 12 credits in mathematics or natural sciences, generally from the departments of Astronomy, Botany, Chemistry, Mathematics, Physics, Statistics, and Zoology. These are identified by the letter "E".

Note: Consult with an academic advisor to determine if the chosen major is one that requires 12 credits in each of the "C", "D" and "E" areas.

Courses in this catalog which may be applied toward the completion of University core requirements are designated by a capital letter, in parentheses, following course titles.

Overloads

Policy normally restricts Continuing Education students to enrollment in a maximum of three separate courses or 11 credits in any one semester. Exceptions to this policy will be considered only if students fill out a petition for overload.

Please be aware that late applications for overload or delay in presenting necessary documents may prevent students from registering before the end of the Add/Drop Period. Petitions may be obtained in the Transfer Affairs Office, 208 Whitmore.

Credit Options

Individualized Study

Individualized Study offers students the opportunity to pursue a topic of interest with an instructor on a one-to-one basis. The student and instructor design an individualized course or agree to work together on an existing University course. A contract is jointly prepared specifying objectives, planned activities and the method of evaluation. Instructors will be compensated at the rates established by the Credit Programs Office of the Division of Continuing Education.

Information and contracts may be obtained from the Credit Programs Office, 109 Hasbrouck, 549-4970.

Individualized Studies may begin at any time during an academic semester. The student has one year to complete the program. The fee is $35 per undergraduate credit and $50 per graduate credit with a $5 registration fee.

Auditing

Students may choose to audit a course and have that audit recorded on the permanent record as an "AUD" provided that: 1) the student officially registers and pays all course fees; 2) the student officially elects the class as an audit (all requests must be submitted to the Continuing Education Records Office by the end of the Add/Drop Period, February 12, 1979; 3) the student satisfies the instructor regarding his or her preparation and motivation for auditing the class; 4) the student satisfies all the criteria for a successful audit as stipulated in advance by the instructor.

College Level Examination Program (CLEP)

CLEP is a national program of credit-by-examination that offers the opportunity to obtain recognition for college-level achievement, no matter when, where, or how learning has been acquired—by means of formal or informal study. If the results are acceptable, college credit is given, applicable toward an undergraduate degree.

Further information about costs, and registration forms may be obtained from the Transfer Affairs Office, 545-3430, or the Community Development Center, Berkshire House, 545-0333.

Credit for Military Service

Special training programs completed during U.S. military service may qualify for transfer credit. Students wishing to receive transfer credit should submit documentation of completed programs or courses to a Continuing Education advisor.

Pass/Fail Option, Continuing Education

Continuing Eduation students are eligible to use a pass/fail option in one course each semester. The student may elect to take up to and including five University core requirement courses on a pass/fail basis. **All requests to employ the Pass/Fail Option must be filed with the Continuing Education Records Office prior to the end of the Add/Drop Period (February 12, 1979).**

Grading Policy, School of Eduation

Effective Spring 1979, all School of Education courses will fall into one of three categories; 1) regular graded courses 2) mandatory plass/fail courses 3) pass/fail courses for which a student may request a letter grade. Students should check with the School of Education or individual course instructors to determine the status of selected courses. For more information, call or write Mike Schwartz, 125B Education Building, University of Massachusetts, Amherst, MA 01003, (413) 545-2701.

Expenses

Course fees are based on the number of credits per course and the level, undergraduate or graduate, of these credits. Please see page for an explanation of the course numbering system as it pertains to undergraduate or graduate level courses and credits. The number of credits per course is listed in the schedule of courses on page 17. Massachusetts residency does not affect the course fee.

Credit Fees

Undergraduate	$35 per credit
Graduate	$50 per credit

The following fees are not refundable except for officially cancelled courses.

Registration Fee (charged once per semeser) Required of all students enrolling for any course held on the UMass/Amherst campus	**$10**
Required of all students enrolling *only* for off-campus courses.	**$5**
Late Registration Fee (charged once per semester) Required of all students registering after January 29 for any *on-campus* course	**$15**
Required of all students registering after January 29 for any *off-campus* course	**$10**

Laboratory Fee		
(a limited number of courses)	**variable**	
Assessed *after* beginning of semester.		
Fee is indiated in the Schedule of Courses.		
Do not include with registration payment.		
Change of Program Fee	**$2**	
Charged for each change recorded.		
Matriculation Fee	**$15**	
Charged only upon student initiation of the matriculation process		
Commencement Fee	**$10**	
Assessed during semester of graduation		
Optional Fees		
Fine Arts Fee	*$3*	
Health Services Fee		*$58.50*
Health Insurance Fee		*$42.00*
Available only with Health Services Fee		
General Recreation FEE		*$10*
Paid at Ticket Office		
Boyden Gymnasium		
Picture Identification Card		*$1*
Student Activities Fee		*$35*

Payment

Full payment of registration fee and all courses fees must be made at the time of registration. Payment may be made by cash, check, American Express, VISA (Bank Americard) or Master Charge. To make a credit card payment for a mail registration, complete the appropriate section on the registration form. All credit card identifying numbers (including bank number for Master Charge cards), credit card expiration date, and bank credit card holder's signature *must* be included.

Refunds

When a student drops a course, instructional and other costs must still be met. Therefore, refunds of course fees are adjusted according to the following schedule:

Refund Schedule	
January 30-February 12	80%
February 13-28	60%
March 1-7	40%
March 8-14	20%
After March 14	NO REFUND

Refund Schedule for courses of less than six weeks duration as follows:

First week of class	50%
After first week	NO REFUND

Refunds for course drops made by mail will be computed according to the date of postmark.

There are two exceptions to the refund policy: 1) a student involuntarily called to military service before the completion of a course will be given a pro rated refund of course fees; 2) students enrolled in courses which are cancelled due to lack of enrollment will be given a full refund.

Explanation of Optional Fees

The Division is pleased to be able to make available the following University services and programs for Continuing Education students. These programs and services are optional. Payment instructions for each are listed below.

Fine Arts Fee

The Fine Arts Center will present an outstanding concert series during the 1978-'79 season. Performing artists will include: Boston Symphony, Moscow Symphony, Martha Graham Dance Company, Carlos Montoya, P.D.Q. Bach and Broadway Shows: "California Suite," "The Wiz" and "Side by Side."

Payment of the Fine Arts Fee allows students to purchase tickets at a discount. This fee is payable at the Continuing Education Records Office, Whitmore Administration Building.

Health Services Fee

University Health Services staff is responsible for the direct provision of a wide range of integrated services. Primary care physicians serve as family doctors and coordinate the nature and extent of services to assure quality care, whether it is provided in the Health Center or under the supplementary insurance program. Laboratory, x-ray physicial therapy, pharmacy, specialty clinics, inpatient facilities, and other services are also available at the Health Center.

The student health program also provides mental health consultation, including short-term and group psychotherapy, a dental program, health education activities in such areas as drug use, nutrition, common health ailments and human sexuality, and an environmental health and safety monitoring unit.

The Health Services Fee is $58.50 for Spring semester only (effective date: January 30, 1979), and is payable to the Division at the time of registration. **Students must enroll for at least six credits to be eligible.**

Health Insurance Fee

University Health Services offers students a hospital, surgical and medical program to supplement the on-campus care.

This insurance provides coverage from January 30, 1979 to August 31, 1979 for specific medical expenses due to injury or emergency illness which causes loss that commences while the policy is in force, including University holidays, summer vacation, and other times when the student is away during the insured period.

This insurance plan offers liberal benefits for services provided by participating physicians and hospitals. The Cooley Dickinson Hospital and groups of general and orthopedic surgeons have entered into an agreement with University Health Services to provide high quality services at no additional cost to the subscriber. Emergency treatment and *authorized* specialist services in a non-participating hospital and by a non-participating physician, however, are covered to $5,000 per occurrence. The insurance brochure is available from the Division of Continuing Education or University Health Services.

Note: Services obtained outside the University Health Center must be authorized in advance by a physician participating in the health plan in order to receive coverage from this insurance.

The cost for January 30, 1979 to August 31, 1979 is $42. Students must pay the Health Services fee of $58.50 in order to purchase the insurance, the fee for which is payable to Continuing Education at the time of registration.

Dependents Health Services Fee

Students who pay a Health Services fee are eligible to enroll their dependents (spouse and/or children) in the Health Services Program. The payment of this fee will allow the student's dependents to receive the same comprehensive health services presently available to students at the University Health Center. Interested persons should contact the Business Office of the University Health Center.

General Recreation Fee

Continuing Education students may pay a $10 general recreation fee, which entitles them to use facilities such as pools, bowling alleys, or gyms, and equipment as it is available. A locker or basket may be obtaied on a space-available basis. All services and facilities are regulated by the Office of Athletics/Intramurals, and Continuing Education students are expected to conform to established policies.

Payment should be made at the bowling alley in Boyden Gymnasium where an I.D. card will be issued.

Picture Identification Cards

Picture I.D. cards are available to Continuing Education students at a cost of $1. Interested students should come to the Continuing Education Records Office, Whitmore, to obtain a receipt of $1 payment and a verification of student number. New students should allow at least 72 hours after registering for the assignment of a student number.

When the picture is taken, the I.D. Office will require a second form of identification. I.D. cards may be picked up at the Continuing Education Records Office 24 hours later. *Picture I.D. cards will be validated each semester.*

I.D. pictures will be taken during daytime and evening hours specifically set for Continuing Education students:

In-Person Registration	
Wednesday, January 17	9 a.m.-4 p.m /169 Whitmore
Thursday, January 18	9 a.m.-4 p.m /169 Whitmore
Friday, January 19	9 a.m.-4 p.m./169 Whitmore
Prior to the first day of classes	
January 22-29	9 a.m.-4 p.m./169 Whitmore
After class begin	
February 5-9	9 a.m.-4 p.m./169 Whitmore
February 12-23	
Monday-Thursdays	12 p.m.-8 p.m -169 Whitmore
Fridays	9 a.m.-4 p.m./169 Whitmore
Thereafter	9 a.m.-4 p.m./169 Whitmore

The I.D. Office is normally closed every Tuesday and Thursday morning until noon. No pictures will be taken during the period January 30-February 2.

Student Activities Tax

This tax supports student government and an extensive and varied range of cultural and social activities for students. In addition, payment entitles each student to admission to many campus events and includes a subscription to the daily student newspaper, the annual yearbook, the student handbook, and a student guide to the campus.

Housing

University residence halls are available on a space-available basis to Continuing Education students wishing to live on campus during the semester. Historically, the Spring semester is overcrowded for the first few weeks. Students should have alternate plans for this period. Information and applications may be obtained from the Housing Office, 235 Whitmore, Administration Building, University of Massachusetts, Amherst MA 01003.

UMass Student Federal Credit Union

The UMass Student Federal Credit Union is student-owned and operated. It offers savings accounts, check cashing privileges for members and low interest loans, and distributes food stamps. Membership is open to any registered full-or part-time student of the University, their families, persons paid with SATF funds, and student organizations. Membership is for life. All accounts are insured by the Federal government. For furhter information, call (413) 545-2800.

Parking Costs

Amherst

Any student who registers for a class held on campus between the hours of 7 a.m. and 6 p.m., and who plans to park a vehicle on the Amherst campus, must do one of the following: 1) obtain a parking decal from the University Parking Office (Room 1, Munson Hall) in order to use campus lots, 2) park in the Campus Center Parking Garage (on a fee-per-hour basis), 3) use metered space. The rates and privileges for parking are determined by the University. Access to all legal spaces in parking lots is not restricted after 6 p.m. or on weekends.

Palmer

Pathfinder Regional High School requires no parking permit.

Northampton

Hawley Junior High School requires no parking permit.

Textbooks

Amherst

The Textbook Annex of the University of Massachusetts stock books for Continuing Education courses and has extended its hours for the convenience of Continuing Education students. Information on books will be posted in the Annex. Blue counter cards signify Continuing Education courses.

The University Store and Textbook Annex hours for spring are listed below.

		Store	Annex
Mon.	Jan 29	9 am-9 pm	9 am-9 pm
Tue.	Jan 30	9 am-9 pm	9 am-9 pm
Wed.	Jan 31	9 am-9 pm	9 am-9 pm
Thu.	Feb 1	9 am-5 pm	9 am-9 pm
Fri.	Feb 2	9 am-5 pm	9 am-5 pm
Sat.	Feb 3	10 am-4 pm	10 am-3 pm
Mon.	Feb 5	9 am-5 pm	9 am-7 pm
Tue.	Feb 6	9 am-5 pm	9 am-5 pm
Wed.	Feb 7	9 am-5 pm	9 am-5 pm
Thu.	Feb 8	9 am-5 pm	9 am-5 pm
Fri.	Feb 9	9 am-5 pm	9 am-5 pm
Sat.	Feb 10	10 am-4 pm	Closed
Mon.	Feb 12	9 am-5 pm	9 am-4 pm

Northampton

Textbooks are available at the Textbook Annex of the University of Massachusetts. Please see the previous schedule. In addition, students have complete access to the Smith College Library upon presentation of a current University of Massachusetts Continuing Education picture identification card.

Palmer

Textbooks are available at the first class meeting.

Student Services

Academic Advising/Counseling

Advisors are available in the University Transfer Affairs Office, 208 Whitmore, to aid students in planning their educational and/or career goals. Office hours are 8:30 a.m.-7 p.m., Monday-Thursday; 8:30 a.m.-5 p.m., Friday. Call (413)549-4970 for an appointment. Making an appointment, may save you waiting time, but walk-ins are welcome.

FINANCIAL AID

Only those Continuing Education students carrying six or more credits and enrolled in a degree or certification program may be candidates for financial aid consideration. Students who have not yet received a baccalaureate degree must apply for a 1978-79 Basic Grant (BEOG). Second baccalaureate and post baccalaureate teacher certification candidates may apply only through authorized banks for guaranteed student loans (HELP loans in Massachusetts) and are urged to do so immediately because funds are limited.

Students who carry at least six credits and who have matriculated through the Division of Continuing Education will be considered for a maintenance allowance in addition to course costs, if the student's demonstrated need warrants and fund budget balances permit.

Students who applied for financial aid in the Fall semester, 1978, through the Division of Continuing Education need only file a Continuing Education, single-page financial aid form and pay the $4. processing fee to reactivate their applications. New

students must fill out and file a complete Continuing Education financial aid packet for Spring, 1979. Forms and information for Continuing Education students are available from advisors in the Transfer Affairs Office, 208 Whitmore Administration Building, (413)549-4970. Return completed forms and other necessary documents to this office.

Ineligible candidates will receive notice by mail and will be allowed to drop courses up to 14 days after being notified of their ineligibility. Eligible who refuse aid must pay for the courses they take.

Non-University Financial Assistance

A resource notebook, available in the Transfer Affairs reception office, 208 Whitmore, contains a list of sources of financial aid outside the University. These special funding agencies require an application directly from the student.

Veterans Benefits

Eligible veterans may apply for benefits to help cover their educational expenses. Eligibility for part-time students is determined by their enrollment in an approved University degree or certificate program. Special regulations apply to the awarding of benefits to Continuing Education students who already have a first Bachelor's degree or who are taking independent study credits. Questions about veteran's benefits should be directed to the Veterans Affairs Office, 239 Whitmore, (413) 545-1348.

Law Enforcement Education Program (LEEP)

In-service police corrections and courts officers may qualify for grants under the provisions of LEEP. Application forms, which must be submitted for each semester of enrollment, are available from advisors in the Transfer Affairs Office, 208 Whitmore. Completed forms must be returned to Harry Neunder in the Transfer Affairs Office by February 13, 1979.

DATES TO REMEMBER

December 8, 1978—Last day to send the 1978-79 BEOG application (Filed only once per school year) to Iowa City to assure receipt of eligibility report (SER) in time for the Continuing Education January walk-in registration.

December 22, 1978—Last day to submit all documents to assure notice of award by three weeks after the end of the add-drop period (February 12, 1979).

February 13, 1979—Absolute deadline for late applicants to submit all required paperwork. Late applicants can expect a delay of about eight weeks between any notice of award and receipt of financial aid checks. *Budget your resources accordingly!*

Course Descriptions

Important Course Description Information

The course descriptions which follow are those which appear in the University of Massachusetts course directory, or which have been approved by the academic department for inclusion in this catalog. Students are urged to visit an academic advisor or examine expanded course descriptions located in the Registration and Records Office, 113 Hasbrouck, or the Credit Programs Office, 109 Hasbrouck.

Course Numbering System effective September 1977.

001-009 **Non-Degree**

100-199 **Introductory lower division**
- —normally taken by freshmen
- —no college level prerequisites
- —departmental courses for freshman majors or equivalent courses for non-majors
- —graduate students may enroll; grades/credits appear on transcript, but do not count toward graduate degree requirements

200-299 **Other lower division**
- —normally sophomore level
- —no college level prerequisites above 100-199 level
- —graduate students may enroll; grades/credits appear on transcript, but do not count toward graduate degree requirements

300-399 **Upper division**
- —typically junior/senior level
- —graduate students may enroll; grades/credits appear on transcript, but do not count toward graduate degree requirements

400-499 **Upper division**
- —typically junior/senior level
- —graduate credit awarded only to candidates *outside* the departments's own graduate program
- —many current double-numbered courses here

500-599 **Combined graduate/undergraduate**
- —suitable for graduates and undergraduates
- —post-baccalaureate students receive graduate credit at graduate rate
- —students without a bachelor's degree receive undergraduate credit at undergraduate rate

600-699 **Master's or first year graduate**
- —current double-numbered courses offered mainly at graduate level

700-899 **Doctoral and advanced graduate**
- —if offerings are sequential, prerequisites and intermediate courses are in 700 series; more advanced in 800 series

900-999 **Post-terminal degree**
- —generally used for post-doctoral and other advanced professional studies

It sometimes becomes necessary for the Division to cancel, add or combine sections of courses listed in this publication, or to change instructors.

All courses are for three credits unless otherwise indicated in the Course Descriptions or the Schedule of Courses.

ACCOUNTING

School of Business Administration

Introduction to Accounting I
ACCTG 221

Principles underlying the preparation of financial statements.

Introduction to Accounting II
ACCTG 222

Continuation of ACCTG 221. Emphasis on development and application of accounting data for planning and control.

ANTHROPOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Introduction to Archaeology (D)
ANTH 102 Palmer

The history, methods and theory of archaeology, with an outline of the prehistoric record throughout the world.

Introduction to Physical Anthropology (E)
ANTH 103

Human evolution, human variation, racial classifications, racism and modern theories of variations.

Introduction to Cultural Anthropology (D)
ANTH 104

Social and cultural anthropology dealing with variations among societies in technology and economics, social and political organization, art, religion and ideology.

Images of U. S. Indians
ANTH 228

Some of the ways in which U. S. Indians have been perceived by social scientists, federal and other officials, "do-gooders" and novelists, from the 18th to the 20th centuries. Extensive reading, in areas of students' personal choice, of books selected from a long bibliography.

ART

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Basic Drawing (C)
ART 100

Basic two-dimensional principles of drawing composition. Topics include the elements of: form, shape, value, line, volume, placement, gestural expression, perspective, media and materials. Drawing from the observation of man-made and natural forms. Emphasis on the visual issues of: relationships and forces, elements as agents of design, configurations on the page.

Drawing Composition (C)
ART101

Continuation of ART 100. Emphasis on pictorial composition and advanced drawing techniques. 6 studio hours.

Basic Design II (C)
ART103

Continuation of ART 102. Specific three-dimensional problems, stressing the interrelationship of materials, processes, techniques and sculptural concepts. Prerequisite, ART 101. 6 studio hours.

Architectural Drawing
ART 190X

Introductory studio course in the essentials of architectural drawing. Emphasis on drafting skills and the development of basic orthographic projection. Paraline drawings and various mechanical perspectives. Rudiments of shades and shadows and beginning freehand rendering. Individual attention.

ART HISTORY

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to the Visual Arts (C)
ARTHIS 115 Northampton

The diverse media of the visual arts from a topical rather than a strictly historical viewpoint. Beginning with the fundamental techniques of formal and stylistic analysis, surveys a wide range of topics in the context of the relation of art objects to their cultures, creators, critics and public.

ASTRONOMY

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Exploring the Universe (E)
ASTRON 100 Northampton

Introduction to astronomy for nonscience majors. Review of the history of astronomy, and changing ideas of the universe. Techniques used by astronomers to observe the universe. Overview of topicsin astronomy including: the exploration of the planets, theories of the birth, life and death of stars, pulsars, galaxies, quasars and black holes. Speculation on the beginnings, present state and eventual developmenbt of the universe. Optional field trips to observatories and a planetarium.

The Solar System (E)
ASTRON 111

Earth, moon, tides, laws of motion, planets and satellites, the sun. Origin of the solar system and current theories of the origin of life.

BACHELOR OF GENERAL STUDIES

Division of Continuing Education
Sharon A. Keillor, Special Assistant to the Provost

Design and Construction of a School Play Space
BGS 200

Design and construction of an indoor or outdoor play space for a school. Students participate fully in all aspects of the project: reading and discussion of basic design practice and theory for the classes, brainstorming, model building and discussions with staff and pupils at the intended site. Instruction in the use of the basic tools and materials necessary for the project. Credit: 4.

Arts Management
BGS 301

Survey of the broad field of arts management (the management of organizations and events that promote one or more of the arts disciplines: music, theater, dance, visual art, crafts, creative writing, film) by examining the various settings that utilize arts managers. Discussion of the various arts administration tasks and related skills such as fundraising, public relations and presenting an arts event. Exploration of future directions for arts administration and the role which the informed administrator can play in determining directions for his or her organization, community and country.

Criminal Justice Study in Victimization
BGS 321

Designed to identify crimes and their victims, explore myths about victims, develop insight into the meaning of victimization, identify resources (local, regional and national) available for victims, examine and research legislation concerning victims of crime. Special attention to victims of sensitive crimes, i.e.rape and child abuse.

Constitutional Issues for Criminal Justice Officers
BGS 322 Northampton

Selected U.S. Supreme Court interpretations of the Constitution and decisions impinging upon law-enforcement functions. Authority to initiate threshold inquiries, arrest offenders, conduct searches and seizures, hold interrogations, and identification procedures. Issues in entrapment, encouragement of criminal activities, surveillance, and undercover operations. Prerequisites: A.S. in Law Enforcement, work experience in the criminal justice system or permission of instructor.

Field Work in Corrections
BGS 324 Northampton

Students work as practitioners in one or more county or Massachusetts state correctional facilities and attend classes on the UMass/Amherst campus. The experience affords direct comparison between the texts, lectures and discussions and the actual conditions in a house of correction. Special attention given to the effects of institutionalization on inmates and corrections officers. Intended primarily for students in the BGS Criminal Justice concentration.

Occupational Safety and Health Management
BGS 330

Managing occupational safety and health hazards in the work environment and developing loss control programs in compliance with Federal Safety and Health requirements (OSHA). Designed for persons interested in control of unsafe and unhealthful conditions and practices in the workplace.

BOTANY

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

General Botany (E)
BOTANY 101

Fundamental view of how plants live and grow. Explores man's vital, aesthetic and economic interaction with the plant world from a contemporary and historical point of view.

BUSINESS ADMINISTRATION

School of Business Administration
Dean Harry Allan

Introduction to Business Computers
BA 210

The BASIC and FORTRAN computer programming languages. Emphasis on use of the computer for business data processing and problem solving.

Business Policy and Strategy
BA 497

An integrative case course requiring identification and possible solution of practical problems encountered by general managers who are responsible at various organizational levels for formulating strategies and their successful implementation.

COMMUNICATION STUDIES

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Interpersonal Communication (C)
COMSTU 250 Palmer

Theoretical and practical understanding of interpersonal communication processes. Emphasis on everyday verbal and nonverbal communication that affects ourselves, others, society and future communication.

Small Group Communication
COMSTU 252

Theory and process of small group communication. Emphasis on task and interpersonal aspects. Practical application through small group experiences.

History and Development of the Motion Picture
COMSTU 340

Evolution of the motion picture as an international art form and social force. Analysis of form, techique and impact of film. Selected screening of representative film styles and content.

COMPARATIVE LITERATURE

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to Comparative Literature (C)
COMLIT 101

Literature as one of the modes of cultural expression. Comparisons and contrasts from contemporary cinema, practical theater, music and graphic art as well as from older works of art, both from the Occidental and the Oriental traditions.

COMPUTER AND INFORMATION SCIENCE

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Computers and Society (E)
COINS 102 Palmer

The use of computers to solve social problems. Topics include data banks, security, computerized voting, automated health care, computer-aided instruction. The long-range impact of computers.

Introduction to Problem Solving Using Computers (E)
COINS 122

Problem solving and FORTRAN programming for students from all disciplines. Concepts associated with problem solving valid for many types of problems. Use of FORTRAN on the KRONOS time-sharing system. Laboratory included. Credit: 4.

ECONOMICS

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Introduction to Microeconomics (D)
ECON 103

Introductory analysis or resource allocation and income distribution through microeconomic theory. Specific problems illustrate the use of the theoretical precepts developed.

Introduction to Macroeconomics (D)
ECON 104

Theory of the behavior of the American economy. Emphasis on the goals of full employment, price stability, economics growth and balance of payments equilibrium.

EDUCATION

School of Education
Dean Mario Fantini

Human Sexuality Awareness
EDUC 290M

Sexuality facts, concepts and information aligned with exploration and sharing of personal attitudes, feelings and values regarding sexuality. Development of awareness of sexuality issues and the ability to enhance one's own sexuality life style and to facilitate the enhancement of others. A foundation for further training in teaching, counseling or facilitating acquisition of knowledge and a healthy adaptation to sexuality

Interpreting Classical Antiquity for Children: How D'Ya Do, Homer?
EDUC 490E

Basics of classical Greek and Roman civilizations for those who have not studied classical subjects and who are working with youth. Includes specific suggestions for reading and studying in these areas. Topics include: the classical tradition in Massachusetts, 1978; Greek mythology; the *Iliad* and *Odyssey* of Homer; profile of the Latin language; ancient classical languages in English words; classical collections in Massachusetts museums.

Introduction to Problems in Language Development
EDUC 490F

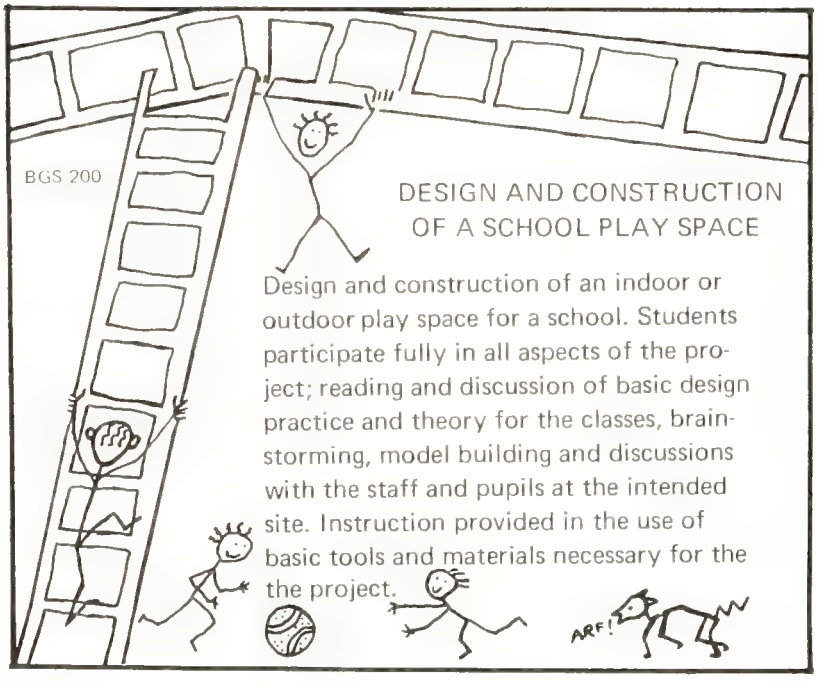
For classroom teachers and concerned laypeople, including parents, who would like to acquire a basic understanding of normal language development and problems which impede this development. Focuses on assessment and description; touches on remediation techniques. Examines social and academic problems arising from impaired language development

Math Anxiety/Math Learning Skills
EDUC 490G

For those who have previously experienced difficulty and/or anxiety in attempting to learn math. By creating a supportive, safe environment, students are encouraged to deal with their anxiety and/or blocks so that the math can be taken in. Emphasis is *not* on math content, or quantity, and this is not a review of the formulas of basic math. Focus on process and, simultaneously, on developing analytical thinking skills and strategies for learning and understanding math, and becoming more comfortable with math problems. Includes arithmetic, fractions, decimals, percentages, word problems, graphs, ratios and algebra. Small groups of 8 - 10 with a facilitator.

Self-Direction, Self-Assertion
EDUC 490I

Encourages self-understanding of the various roles the individual plays as he or she responds to others with behavior patterns of aggression or passivity instead of an apropriate self-assertion. Focuses on the individual's learning to discover and to identify more fully with the sources of power and energy in the core of the self. Assertive acts emerge naturally from a genuine acceptance of his whole self and a trust in his own unique potential for growth. Methods for behavioral self observation presented with the use of a journal for record keeping. Opportunity for self-evaluation goal setting and behavioral self



management which includes self contracts, role play and the practice in support groups of the specific skills needed to implement target behaviors he has chosen. New behaviors reinforced in small groups and life situations at home, and at work with the use of self reinforcement with techniques of behavior rehearsal, image making, and self statements. Additional practice in communication skills offered, including effective confrontation techniques, receptive listening and feedback, handling conflict situations, working on a fear hierarchy and stress reduction.

Fairy Tales Revisited
EDUC 590W

Why the classic fairy tale is so perfect for children. The psychoanalytic interpretation of childhood development: why no other theory helps us understand children as thoroughly. Combines reading fairy tales with a careful study of psychoanalytic materials. Includes practice in vital and imaginative ways of telling the stories.

Sex Role Stereotyping
EDUC 590X

Identification and examination of sex-role related patterns as they operate in their behavioral schema. Employment of strategies to affect change. Short and long term goals established. Workshop exercises, focused discussions, small group activities, films, lecturette and outside readings stimulate awareness and facilitate change. Historical background to women's movement and theories of change examined.

DIVISION OF HUMAN SERVICES AND APPLIED BEHAVIORAL SCIENCES

Human Relations Laboratory
EDUC H 320

For prospective teachers and others who wish to acquire basic human relations skills. Learning objectives include: increased insight into self and how one's behavior affects others, increased skills in interpersonal communication and leadership skills in working with groups. Conducted on a workshop basis. Approximately two-thirds of class time devoted to theory and structured experiential exercises. The remainder devoted to an unstructured Training (T) Group. Class Schedule- (2/2) 4:00-6:00pm; (2/7) 4:00-8:00pm; (2/9) 6:00-10:00pm; (2/10,2/11) 9:00am-10:00pm; (2/14) 4:00-8:00pm; (2/16,2/19) 4:00-6:00pm

Education of the Self
EDUC H 322

For people in the helping professions: teachers, coaches, counselors, social workers, nurses, doctors or parents. Includes systematic strategies for each student to: identify personal patterns of thinking, feeling and acting; identify the consequences of these response patterns; choose, try out and evaluate alternative responses; identify the implications of personal patterns of response in our roles as helpers; learn to help others through this process.

Introduction to Family Counseling
EDUC H 490N

Family systems approach applying Bowen Theory to research in one's own family of origin. Topics include: triangles, differentiation of self scale, multigenerational transmission process, nuclear family emotion system, family projection process, sibling position and societal regression. The genogram, theory-based video tapes, family sculpting and focused discussions used to expand each student's understanding of functioning in his/her family emotional system. Emotional functioning patterned in family emotional system. Structural family therapy and communication theory.

DIVISION OF INSTRUCTIONAL LEADERSHIP

Methods of Teaching English as a Second Language
EDUC I 590-0 Springfield

Focuses on methods of teaching English to speakers of other languages, using a linguistics approach. The place of ESL in bilingual education, a survey of competency tests used to assess language dominance and demonstrations of materials and their use for different age groups. Useful for elementary and secondary school teachers serving non-English speaking populations, teacher's aides and community workers. Students attend classes and participate in discussions, read required materials, give individual reports, take part in classroom demonstrations of teaching methods, develop materials and curriculum. Graduate students required to produce a term project in curriculum development in ESL or write a research paper.

FOOD ENGINEERING

College of Food and Natural Resources
Acting Dean William J. Mellen

Housing Design and Construction
FD ENG 261

Background for the preparation of a well-planned design, primarily from functional, economic and structural viewpoints. Accent on current and future needs for energy conservation, alternative energy sources and viable present forms of such sources. Practice in reading and understanding of architectural plans by preparation of a set of plans for construction of a home of student's own design.

FOOD AND RESOURCE ECONOMICS

College of Food and Natural Resources
Acting Dean William J. Mellen

World Food & Resource Economics (D)
F&R EC 121

The current food situation and future prospects and possibilities. An analysis of regional production strategies. The roles of international institutions, research, training and extension. Input supply systems. Population control problems, the Green Revolution, Land Reform. Development experiences of different countries.

ENGLISH

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Society and Literature (C)
ENGL 131

Literature that deals with man's relationship to society. Topics may include: the utopian vision; the notion of the self; politics and literature. Readings may include works by Mailer, Sophocles, Austen, Thoreau, Marx.

Expository Writing
ENGL 150

Improves students ability to write clear, effective prose of a critical nature. Discussion and analysis of writing done by students.

Major British Writers (C)
ENGL 171

Substantial portions of Chaucer's *Canterbury Tales,* Spenser's *Faerie Queene* and Milton's *Paradise Lost,* as well as selections of other works from *Beowulf* to the eighteenth century. Emphasis on the work in its historical context, as a document of contemporary response to social and political issues and as a revision of earlier literary visions.

The Modern Novel 1890-1930 (C)
ENGL 261 Northampton

The most powerful modern British and American novelists: Joyce, Woolf, Lawrence, Hemingway, Fitzgerald, Faulkner. Examination of the experiments of these writers in response to their experience of the early twentieth century.

ENTOMOLOGY

College of Food and Natural Resources
Acting Dean William J. Mellen

Insects and Man
ENT 226 (E)

The widespread effects of insects, the greatest competitors of mankind. Includes basic insect biology, also the influence of insects on human health and food supplies. Offered without laboratory.

FOOD SCIENCE & NUTRITION

College of Food and Natural Resources
Acting Dean William J. Mellen

Nutrition & People (E)
FS&N 130

Emphasis on developing an understanding of the principles of the science of human nutrition as it is relevant to contemporary life. Development of an informed appreciation of the relationship of health to food intake and competency and confidence in planning adequate diets for normal persons of various ages who are under various stresses. Emphasis on college-age persons. Language understandable to students with little knowledge of chemistry or mammalian physiology.

FRENCH

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Elementary French
FRENCH 120

For those with no previous creditable training in French. Intensive practice in the four language skills. Follows French 110, Elementary French.

GENERAL BUSINESS & FINANCE

School of Business Administration
Dean Harry Allan

Introduction to Law
GB FIN 260

The nature, function and limits of law. Various theoretical approaches to law as an important institution in society. Selected problems of law, power and stratification and the relationship of law and values in society.

Corporation Finance
GB FIN 301 Northampton

Corporate financial behavior; appraisal of factors affecting decision-making regarding

purces and application of funds; introduction o capital budgeting and cost of capital problem. Prerequisite: ACCTG 221 or permission f instructor.

inancial Institutions
GB FIN 310

he American financial system and functional elationship between financial institutions and conomic activities of households, business rms and governmental units. Prerequisites: CCTG 221 and ECON 104; Corporation inance and Descriptive Statistics desirable.

HISTORY

aculty of Humanities and Fine Arts
cting Dean Richard Noland

uropean History 1500 to 1815 (C)
HIST 140

listorical development of Western European hought and institutions. History majors are trongly urged to take this course before egistering for advanced European courses.

he Development of American Civilization to 876 (C)
HIST 150 Palmer

robes the roots of our national experience rom the Revolution through the 1860's. ocuses on the period when the American peole shaped their fundamental political institions, tamed the wilderness, uneasily conronted the emerging world of cities and facories, plunged into a side array of reform ovements and wrestled with a moral and olitical crisis which ultimately drew them into ivil War.

he Development of American Civilizaion—1876 On (C)
HIST 151

xplores the process by which the United tates in the late 19th century emerged as an rban nation and the world's leading industrial ower -- not only its technological and political imensions, but also its human and social eaning for native-born folk and immigrant asses alike. Moving into the 20th century, ssess the reformism of the Progressive era, he impact of World War I, the deceptive properity and gaiety of the Roaring Twenties, the olitics and suffering of the Depression ecade and the stresses and transformations f our own era.

pecial Topics: Professional Health Care in merica, 1911 - 1978
HIST 297P

or professional health workers, health care tudents and interested laypeople who wish a etter understanding of the powers and funcions of health care in the United States, the institutional and professional social setting and he political and social relationship to governent in America.

he Civil War Era (C)
HIST 364

he causes, execution and consequences of he American Civil War. Emphasis on sectional conflict from the early national period to outhern secession in 1860-1861, to the nature nd conduct of the war itself and to the war's rofound consequences.

HOME ECONOMICS

ollege of Food and Natural Resources
cting Dean William J. Mellen

rinciples & Concerns of Retailing
HOM EC 272

or the practicing retailer as well as the stuent of retailing. Oriented towards profit making. Equal focus given to the consumer, supplier and retail manager. Managerial functions such as planning, control and organization studied for internal and external cost/profit goals. Specific topics include: entrepreneurship, open-to-buy, shoplifting and personnel.

Seminar: Retailing and Merchandising
HOM EC 391A

For practicing and future retail managers whose performance is based on profit contribution. Quantitative approach in calculating mark-ups and mark-downs, inventory control, stock-turning, sales-forecasting open-to-buy, vendor negotiations and computerization.

HOTEL, RESTAURANT & TRAVEL ADMINISTRATION

College of Food and Natural Resources
Acting Dean William J. Mellen

Introduction
HRTA 100

An orientation to the hotel, restaurant and travel industry. Examines the development of the industry, current trends and opportunities in the various sectors of the industry.

Seminar: Advanced Beverage Management
HRTA 493A

Introduction to wines and spirits; identification of the various types. Working knowledge of their origin, production and availability. Application of knowledge to the hospitality industry: buying, pricing, controls, storage, use, taste promotion, selling and service.

JOURNALISTIC STUDIES

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to Newswriting and News Reporting JS 200

The basic techniques of journalism, print and broadcast. A laboratory course. Students report and write under immediate professional supervision.

Seminar: Editing Specialized Publications
JS 291S

Uses actual materials, specific assignments and defined problems in a case-study approach to editing actual publications. Editing and rewriting actual texts, from rough submissions to final galleys. Problems include: heavy vs. light editing (and how not to confuse this with crude vs. sensitive editing), editing to save the author's ego while killing the author's bias, editing or rewriting the same material for different audiences and editing for children. Other basic editing problems; sources, resources, reference works, main routes and shortcuts, house styles and manuals; the grammar and punctuation of copy editing.

LEGAL STUDIES

Special Programs
Special Assistant to the Provost
John Hunt

Introduction to Legal Studies
LEGAL 250

The purposes and functions of law in society. Legal reasoning and decision-making; the impact of law upon persons directly and indirectly involved w`.h it; the relationship between political, social and economic power and law; the relationship of law and morality; and the problems of achieving justice in contemporary society.

LINGUISTICS

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

People and Their Language (C)
LING 101

Relationship of linguistics to other fields in the sciences and the humanities. Relevance of language to the individual, to the group, to the society. Definition of language. Introduction to grammar. Origin, change and variety of

NUCLEAR POWER PLANT UNDER CONSTRUCTION

1979

CARTER PUSHES ENERGY BILL

SALT TALKS CONTINUE

PHYSIC 119

PHYSICS APPLIED TO CONTEMPORARY PROBLEMS

Principles of physics applied to the contemporary problems of energy usage, nuclear energy, and the arms race. This course will set a scientific foundation for the study of these problems with social, political, and economic implications.

language. Phonetics, phonology, morphology, syntax, semantics, pragmatics and lexical items. Linguist's use of a formal description of language.

Seminar: Structure of American English
LING 492A

Review of parts of speech and the grammatical description of "standard" English. Exploration of the basis of some common dialect differences. Examination of a variety of grammatical "errors" and how they arise; exploration of some of the "peculiar" rules of English grammar. Some differences between English and other languages. Of potential relevance for teachers, writers, students of foreign languages, speech therapists and persons interesfed in increasing awareness of his/her language.

MANAGEMENT

School of Business Administration
Dean Harry Allan

Principles of Management
MGT 301-01, Amherst; -02, Palmer

Introduction to the fundamentals of the management of organizations. Survey includes behavioral background of formal organizational design, integrating factors in collective behavior, organizational change, systems analysis, techniques of decision-making and control, the organization and its environment and the natue of management theory.

Personnel Management
MGT 314

Principles and policies followed by management in recruitment, development, direction and control of personnel.

Administrative Theory
MGT 331

Principles of administration, modern organization, functionalization, coordination, planning and control, authority status, leadership, decision-making, communication and power-structuring. Prerequisites: MGT 301, 330.

Business and Its Environment
MGT 365

A critical examination of the social, political, technological, and ethical issues confronting the contemporary manager and the modern corporation. Competing concepts of the role of business in society. Prerequisite, junior standing or permission of instructor.

Management-Union Relations I
MGT 444

Comparison of union-management objectives, functions, and structures, including scope and impact of union penetration into areas of managerial authority. Prerequisite, MGT 301 or 314.

MARKETING

School of Business Administration
Dean Harry Allan

Fundamentals of Marketing
MKTG 301

The role of marketing in our economic and social structure. The planning, distribution, pricing and promotion of goods and services to consumer and industrial markets.

Distribution Channels and Systems
MKTG 423

A systems approach to the management of all activities that facilitate the movement of goods and coordination of supply and demand. Prerequisite, MKTG 301 or permission of instructor.

Marketing Strategy
MKTG 459

Exposure to realistic problems through computerized simulation or analysis of cases. Practice in seeking solutions to marketing problems through an integration of factors pertintent to strategy development. Prerequisite, senior standing or permission of instructor.

MATHEMATICS

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Algebraic Review
MATH 101

Rapid review of manipulative algebra for precalculus students who have been out of school for some time or who have insufficient knowledge of secondary school mathematics. Note that 101/102/103 do *not* satisfy an E core requirement. Note that a student must register separately for each of the courses 101, 102 and 103. Registration for 101 does *not* automatically register the student for 102 or 103. Credit: 1.

Analytic Geometry with Elementary Functions
MATH 102

Introduction to the function concept and some analytic geometry for precalculus students who have been out of school for some time or who have insufficient knowledge of secondary school mathematics. Prerequisite: Math 101 or equivalent. Credit: 1.

Precalculus Trigonometry
MATH 103

Essential trigonometry for precalculus students who have not had modern trigonometry or who have insufficient knowledge of modern high school trigonometry. Prerequisite: MATH 102 or equivalent. Credit: 1.

Mathematics For Business II (E)
MATH 121

Continuation of MATH 120. Techniques of integration, partial derivatives, linear systems of equations, matrices, vectors, Markov chains and linear programming. Credit not given after MATH 112, 233 (165), or 235 (167). Prerequisite, MATH 120.

Calculus For The Life and Social Sciences II (E)
MATH 128

Continuation of MATH 127. No credit after MATH 121, 132, 133 (138). Prerequisite, MATH 127.

MICROBIOLOGY

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Biology of Micro-organisms (C)
MICBIO 150

Concerned with the role of bacteria and viruses in the biological world. Introductory series of lectures on the basic aspects of microbial structure, growth and genetics; emphasis on the place of microorganisms in human disease including an extended discussion of the defense mechanisms of the human body.

MUSIC

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Appreciation—Introduction (C)
MUSIC 100

Open to all students not majoring in music. Previous musical training not required. Basic music materials, principles of design, and cultural significance of representative works from the ninth century to the present.

PHILOSOPHY

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to Philosophy (C)
PHIL 100

Some of the most important general questions, ideas, theories, and methods of inquiry which have given direction to Western thought.

Problems in Social Thought (C)
PHIL 161

A critical examination of a number of major problems in social policy and philosophy.

PHYSICS

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Physics for Poets (E)
PHYSIC 100

An in-depth survey of and introduction to the basic concepts of modern and classical physics: mechanics, heat, light, sound, gravity, electricity, magnetism, atoms, nuclei, elementary particles, relativity, uncertainty, duality. Includes historical development and philosophical implications. Especially welcome are those who know nothing about physics. Knowledge of algebra helpful.

Physics Applied to Contemporary Problems (E)
PHYSIC 119 Northampton

Principles of physics applied to the contemporary problems of energy usage, nuclear energy and the arms race. The scientific foundation for study of problems with social, political and economic implications.

Physics—LIfe Science Majors II (E)
PHYSIC 142

For those who have a basic interest in the world around them and would like to deepen their understanding of why physical phenomena happen the way they do. Provides a thorough grounding in the basic principles of mechanics, heat, and sound (using algebra and trigonometry, but not calculus), with ample opportunity to observe nature's mysteries first hand in the laboratory. Prerequisites: high school algebra and trigonometry. Credit: 4. Laboratory included.

PLANT & SOIL SCIENCES

College of Food and Natural Resources
Acting Dean William J. Mellen

Basic Plant Science (E)
PLSOIL 100

Introduction to crop-plant production. The sociological aspect of agriculture; the role of agriculture in cultural evolution: the need for

food, energy and crop production, the Green Revolution and agricultural pollution. Topics include: genetics and plant breeding, plant growth and development, mineral nutrition, crops and their environment.

Organic Farming and Gardening (E)
PLSOIL 120

Basic principles of plant nutrition and culture; soil fertility and management by organic methods; biological and natural control of insect pests, weeds and plant diseases; variety selection. Emphasis on vegetable crops. Alternative chemical methods presented and contrasted.

POLISH

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Introduction to Polish People (C)
POLISH 250 Palmer

A survey of Polish civilization, emphasizing Polish history, the history of the Poles in America, folk art and crafts, folk traditions, as well as refined arts.

POLITICAL SCIENCE

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

World Politics (D)
POLSCI 121 Northampton

Introduction to the nature, dynamics, and problems of world politics. Nationalism, ideology, and other forces underlying the foreign policies of the United States, the Soviet Union, and other states, as illustrated by selected contemporary issues.

Public Administration (D)
POLSCI 320

This course will present an introduction to bureaucracy; to what political scientists have come to call the "fourth branch of government." We will attempt to accomplish two things: first, a review of the general theoretical characteristics of modern, large-scale organizations, in order to become familiar with its nature and vocabulary of self-presentation, taking the modern large scale "multiversity" as an example. Second, readings in the more cogent criticisms of bureaucracy. It will be assumed that bureaucracy has become the dominant form of life in modern society, and the underlying purpose of the course will be to teach the student what this means. *The readings are absolutely required.* Final grades will depend upon class participation and written work.

PSYCHOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Elementary Psychology (D)
PSYCH 100

An introduction to the basic approaches and concepts of modern psychology. Examples from the areas of perception, conditioning, cognitive processes, social behavior, tests ad measurements and personality.

Psychology as a Natural Science (D)
PSYCH 110

Introduction to psychology including those fields concerned with a natural science approach to the study of behavior. Emphasis on the scientific method, biological determinants and bases of sensation, perception and learning, comparative and evolutionary perspectives on behavior and the role of early experience and language in human behavior.

Psychology as a Social Science (D)
PSYCH 150

Introduction to the basic approaches and concepts of psychology as a social science. Topics include issues from clinical, developmental, educational, human learning, and language, personality and social psychology.

Educational Psychology (D)
PSYCH 205

Psychological facts and principles of development, learning and measurement as applied to educational situations. Prerequisite: PSYCH 100 or PSYCH 150.

Psychology of Women
PSYCH 208 Northampton

A survey in the psychological study of women. Topics include recent research findings in: biology, sex-role socialization, career development, achievement motivations, marital roles, sexuality and mental health. Discussions focus on women in today's society with special attention to evidence for women's potential for adrogeny. Prerequisite, PSYCH 100 or PSYCH 150 or Women's Studies Concentration.

Personality (D)
PSYCH 370

Introduction to the scientific study of personality. Personality development, structure and dynamics from major theoretical orientations. Prerequisite, PSYCH 100 or PSYCH 150

Mental Retardation
PSYCH 480 Palmer

Introduction to mental retardation; its psychological, sociological, educational, biomedical, and legal aspects. Half day per week field work. Lecture and discussion group. Prerequisite, PSYCH 280, 350 or 486 recommended

Theories and Practice in Counceling
PSYCH 585

Theories, techniques and tests necessary in counseling and guidance. Practice in organization and evaluating relevant data in the analysis of illustrative cases. Prerequisite, PSYCH 370, or 543, or permission of instructor.

Seminar: Psychology of Obesity
PSYCH 591A

Introduction to the psychological aspects of obesity and weight control. Emphasis on understanding personal weight problems. Development of the skills to create an individualized reducing program and to manage the art and science of dieting, leading to permanent weight-loss without discomfort and hunger. Analysis of specific weight problems, discussion of proper treatment modality, including behavior modification. Topics include: obesity in childhood and adolescence; Anorexia Nervosa; genetic and environmental factors; cultural and social factors; the stigma of obesity; characteristics of the obese personality; the distorted body image; overeating as a defense mechanism, as expression of anxiety or hidden hostility, as response to parental control and manipulation; depression and suicide in obesity; guilt feelings and self-punishment.

RHETORIC

Special Programs
Special Assistant to the Provost
John Hunt

Rhetoric of Language and Writing; Writing and Speaking-Integrated Skills I (B)
RHET 100C-91 Amherst; -92, Northampton

First semester of a year sequence; practice in both writing and speaking. Emphasis on the relationship of clear, orderly thought to effective communication. Materials designed to introduce the elements of critical analysis. Contemporary issues in all areas constitute the subject matter. Required for Business majors.

Rhetoric of Language and Writing; Elements of Writing (B)
RHET 100G

A more basic language behavior course. Emphasizes writing, editing, and re-writing to attain clarity in the use of words, syntax, and organization. Subject matter is interdisciplinary. (*Not* a remedial writing course.)

SCHOOL OF BUSINESS ADMINISTRATION

School of Business Administration
Dean Harry Allan

Cobol and Data Base Design
SBA 513

All aspects of COBOL language and its application to business data processing. All standard features of COBOL and special data base features. Emphasis on common business programming models. (Not for graduate credit.)

SOCIOLOGY

Faculty of Social and Behavioral Sciences
Acting Dean T. O. Wilkinson

Self, Society, and Interpersonal Relations (D)
SOCIOL 105

Basic concepts, perspectives and data in sociology approached through social psychology. Relationship between individual, group and society. Topics: socialization, social roles, social interaction, dynamics of small groups, self, attitudes, and language and communication

Contemporary American Society (D)
SOCIOL 107

Introduction to sociology emphasizing contemporary American society. Current theories of organization of madern industrial societies focusing on America. Topics: socialization in contemporary American family, American educational system, occupational composition of American labor force; women in America; poverty and income distribution; race,religion, and ethnicity in American social structure; and American political system.

Urban Society (D)
SOCIOL 460 Northampton

Comparative analysis of cities and urbanization with reference to demographic characteristics of urban population, urban ecology and urban social structure.

SPANISH

Faculty of Humanities and Fine Arts
Acting Dean Richard Noland

Elementary Spanish II
SPAN 120

Continuation of previous semester Spanish 110. Intensive practice in language skills. To fulfill the language requirement, upon completion of the course most students are required to continue by taking SPAN 130, 140.

Oral Spanish II
SPAN 181

Continuation of previous semester Spanish 180. Pronunciation, vocabulary building, speeches, discussions, debates. Grammatical elements required for correct and fluent use of American and Peninsular Spanish. Prerequisite: SPAN 180 or permission of department.

STATISTICS

Faculty of Natural Sciences and Mathematics
Dean Seymour Shapiro

Statistics for Business (E)
STATIS 140

Required of all undergraduates in the School of Business Administration. A one-semester introductory course. Descriptive statistics, a small amount of probability theory and an introduction to the ideas of statistical inference. Topics include frequency distributions and measures of central tendency and of dispersion, linear regression, probability, the binomial and normal distributions, internal estimation and hypothesis testing.

WORLD FOOD RESOURCES
WORLD FOOD RESOURCES
WORLD FOOD RESOURCES

The future food situation and future prospect and possibilities. An analysis of regional production strategies. The roles of international institutions, research, training and extension. Input supply systems. Population control problems, the Green Revolution, Land Reform. Development experiences of different countries. F&R EC 121

Day/Location Guide

MONDAY

ACCTG 221/Intro to Acctg I
ANTH 102/Intro to Archeology (Palmer)
ANTH 104/Intro Cultural Anth
ART 100/Basic Drawing
ART 103/Basic Design II
BA 210/Intro to Bus Comp
BA 497/Bus Policy & STRAT
BGS 324/Field Work/Corr (NHAMP)
BOTANY 101/Gen Botany
COINS 122/Intro Prob Solv W/Comp
ECON 103/Intro to Microecon
EDUC 290M/Human Sexlty Awarnss
EDUC 490I/Self Dir/Self Assert
EDUC 590X/Sex Fole Stereotyping
EDUC H 322/Educ of Self
ENGL 261/Mod Novel 1890-1930 (NHAMP)
F&R EC 121/World Food & Res Eco
FD ENG 261/House Des & Const
FRENCH 120/Elementary French
HIST 364/The Civil War Era
HOM EC 272/Prin & Con Retail
HRTA 100/Introduction
LING 492A/Sem-Struct Amer Engl
MATH 121/Math for Bus II
MGT 331/Admin Theory
MICBIO 150/Biol of Microorgnsms
MUSIC 100/Appreciation-Intro
PHYSIC 119/Phys Appl to Con Pr (NHAMP)
POLISH 250/Intro to Polish Ppl (PALMER)
PSYCH 100/Elem Psych
PSYCH 370/Personality
PSYCH 480/Mental Retardation (PALMER)
RHET 100C-91/Rhet of Lang & Writ
SPAN 120/Elem Spanish
STAT 140/Stat For Business

TUESDAY

ACCTG 222/Intro to Acctg II
ANTH 103/Intro Physical Anth
ART 101/Drawing Comp
ART 190X/ Architectural Drawing
ARTHIS 115/Intro Visual Arts (NHAMP)
ASTRON 111/The Solar System
BGS 330/Occup Safe & Hlth Mgt
COMSTU 252/Small Grp Communication
COMSTU 340/Hist & Dev Mot Pic
ECON 104/Intro to MacroEcon
EDUC 590W/Fairy Tales Revisited
EDUC H 490N/Intro to Family Counseling
ENGL 171/Major Brit Writers
FS&N 130/Nurtition & People
GS FIN 260/Intro to Law
HIST 297P/Sp Tpc Amer Hlth Care
LING 101/People & Their Lang
MATH 101/Algebraic Review
MATH 102/Anal Geom/Elem Func
MATH 103/Precalc Trig
MATH 128/Calc Life-Soc Sci II
MGT 314/Personnel Mgt
MKTG 423/Dist Channels & Syst
PHIL 100/Intro to Phil
PHYSICS 142/Phys-Life Sci Maj II
POLSCI 121/World Politics (NHAMP)
PSYCH 150/Psych Soc Sci
PSYCH 585/Theory & Prac Cousl
SOCIOL 107/Contem Amer Soc

WEDNESDAY

ART 100/Basic Drawing
ART 103/Basic Design II
BGS 200/Des & Const School Space
BGS 322/Const Iss/Crim Just (NHAMP)
COMLIT 101/Intro to Comlit
EDUC 490E/Interp Clscl Antq Ch
EDUC 490F/Intro Prob Lang Dev
EDUC I 590O/Methods Tchng ESL (SPFLD)
ENGL 150/Expository Writ
ENT 226/Insects & Man
FRENCH 120/Elementary French
GB FIN 301/Corp Finance (NHAMP)
HIST 140/Pr Eur His 1500-1815
HRTA 493A/Sem-Adv Beverge Mgt
JS 291S/Sem-Edtg Spec Pub
MATH 121/Math for Business II
MGT 301-1/Princ of Mgt
MGT 365/Bus & Its Environ
MKTG 459/Mktg Strategy
PHYSICS 100/Physics for Poets
PLSOIL 120/Org Farm & Gardng
POLSCI 320/Pub Administration
PSYCH 110/Psych as Nat Sci
PSYCH 205/Educational Psych
PSYCH 208/Psychology of Women (NHAMP)
RHET 100G/Rhet of Lang & Writ
SBA 513/Cobal & Data Bas Des
SOCIOL 105/Self, Soc & Inter Rel
SPAN 181/Oral Span II
STATIS 140/Stat for Business

THURSDAY

ANTH 228/Images of US Indians
ART 101/Drawing Comp
ART 190X/Architectural Drawing
ASTRON 100/Exploring Universe (NHAMP)
BGS 301/Arts Mgt
COINS 102/Computer & Society (PALMER)
COMSTU 250/Interpersonal Comm (PALMER)
EDUC 490G/Mth Anx/Mth Lrng Sk
ENGL 131/Socity & Lit
GB FIN 310/Fin Institutions
HIST 150/Dev Amer Civ to 1876 (PALMER)
HIST 151/Dev Amer Civ 1876 On
Hom Ec 391A/Sem-Retail Mrchdsng
JS 200/Intro News & Rptng
LEGAL 250/Intro Legal Studies
MATH 101/Algebraic Review
MATH 102/Anal Geom/Elem Func
MATH 103/Precalc Trig
MATH 128/Calc Lif-Soc Sci II
MGT 301-2/Princ of Mgt (PALMER)
MGT 444/Mtg-Union Rels I
MKTG 301/Fund of Mktg
MKTG 423/Dist Channels & Syst
PHIL 161/Problm Social Thought
PHYSIC 142/Phys-Life Sci Maj II (LAb)
PLSOIL 100/Basic Plant Science
PSYCH 591A/Sem-Psyc of Obesity
RHET 100C-92/Rhet of Lang & Writ (NHAMP)
SOCIOL 460/Urban Sociology (NHAMP)

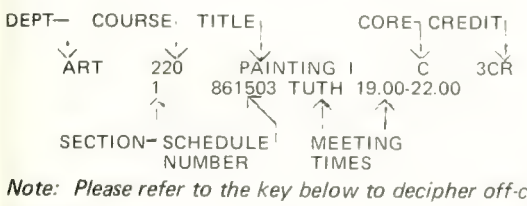
SATURDAY

BGS 321/Crim Jus Stdy-Victm

Schedule of Courses

ROOM ASSIGNMENTS are posted at all Continuing Education registration areas. ALL STUDENTS should check for classroom location when registering or some time before the first class meeting. Students preregistered by January 12 will receive notification of room assignment by mail prior to the first day of class. Please avoid unnecessary phone calls by obtaining your room assignments early.

All courses in this schedule are listed alphabetically by Departmental abbreviation and should be read as follows:



Note: Please refer to the key below to decipher off-campus abbreviations.

NHAMP—Hawley Junior High School, Northampton
PALM—Pathfinder Regional High School, Palmer
SPFLD—Springfield, location to be announced

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
A-C-C-O-U-N-T-I-N-G					
ACCTG	221*		INTRO TO ACCTG I		3CR
	1	900052 M 19.00-22.00			
ACCTG	222*		INTRO TO ACCTG II		3CR
	1	900305 TU 19.00-22.00			
A-N-T-H-R-O-P-O-L-O-G-Y					
ANTH	102*		INTRO TO ARCHAEOLOGY	D	3CR
	1	900552 M 19.00-22.00			PALM
ANTH	103*		INTRO PHYSICAL ANTH	E	3CR
	1	900805 TU 19.00-22.00			
ANTH	104*		INTRO CULTURAL ANTH	D	3CR
	1	901057 M 19.00-22.00			
ANTH	228*		IMAGES OF US INDIAN		3CR
	1	901300 TH 19.00-22.00			
A-R-T					
ART	100*		BASIC DRAWING	C	3CR
	1	901557 MW 19.00-22.00			
ART	101*		DRAWING COMPOSITION	C	3CR
	1	901800 TUTH 19.00-22.00			
ART	103*		BASIC DESIGN II	C	3CR
	1	902052 MW 19.00-22.00			
ART	190*		ARCHITECTURAL DRAWING		
	91		TUTH 19.00-22.00		3CR
A-R-T H-I-S-T-O-R-Y					
ARTHIS	115*		INTRO TO VISUAL ARTS	C	3CR
	1	902305 TU 18.30-21.30			

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
A-S-T-R-O-N-O-M-Y					
ASTRON	100*		EXPLORING UNIVERSE	E	3CR
	1	902552	TH 18.30-21.30		NHAMP
ASTRON	111*		THE SOLAR SYSTEM	E	3CR
	1	902805 TU 19.00-22.00			
B-U-S-I-N-E-S-S A-D-M-I-N-I-S-T-R-A-T-I-O-N					
BA	210*		INTRO TO BUS COMP		3CR
	1	903057 M 19.00-22.00	LAB FEE $17.00		
BA	497*		BUS POLICY & STRAT		3CR
	1	903300 M 19.00-22.00			
B-A-C-H-E-L-O-R O-F G-E-N-E-R-A-L S-T-U-D-I-E-S					
BGS	200*		DES&CON SCH PLAY SP		4CR
LEC	1	903557 W 19.00-22.00			
LAB	1	903608 BY ARRGT			
BGS	301*		ARTS MANAGEMENT		3CR
	1	903855 TH 19.00-22.00			
BGS	321*		CRIM JUS STDY-VICTIM		3CR
	1	904103 S 9.05-12.05			
BGS	322*		CONST ISS/CRIM JUST		3CR
	1	904350 W 18.30-21.30			NHAMP
BGS	324*		FLD WRK/CORRECTIONS		3CR
	1	904603 M 18.30-21.30			NHAMP
BGS	330*		OCCUP SAFE&HLTH MGT		3CR
	1	904850 TU 19.00-22.00			
B-O-T-A-N-Y					
BOTANY	101*		GENERAL BOTANY	E	3CR
	1	905108 M 19.00-22.00			
C-O-M-P-U-T-E-R & I-N-F-O-R-M-A-T-I-O-N S-C-I-E-N-C-E					
COINS	102*		COMPUTER & SOCIETY	E	3CR
LEC	1	905355 TH 19.00-22.00			PALM
LAB	1		BY ARRGT (IN AMHERST)	LAB FEE $10.00	
COINS	122*		INTR PRB SOLV W/COMP	E	4CR
LEC	1	905608 M 19.00-22.00			
LAB	1	905653 BY ARRGT		LAB FEE $10.00	

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
C-O-M-P-A-R-A-T-I-V-E L-I-T-E-R-A-T-U-R-E					
COMLIT	101*		INTRO TO COMLIT	C	3CR
	1	905906 W 19.00-22.00			
C-O-M-M-U-N-I-C-A-T-I-O-N S-T-U-D-I-E-S					
COMSTU	250*		INTERPERSONAL COMM	C	3CR
	1	906158 TH 19.00-22.00			PALM
COMSTU	252*		SMALL GRP COMMUNICAT		3CR
	1	906401 TU 19.00-22.00			
COMSTU	340*		HIST & DEV MOT PICT		3CR
	1	906658 TU 19.00-22.00	LAB FEE$10.00		
E-C-O-N-O-M-I-C-S					
ECON	103*		INTRO TO MICROECON	D	3CR
	1	906901 M 19.00-22.00			
ECON	104*		INTRO TO MACRCECON	D	3CR
	1	907153 TU 19.00-22.00			
E-D-U-C-A-T-I-O-N					
EDUC	290M		HUMAN SEXULTY AWARNS		3CR
	91	907406 M 19.00-22.00			
EDUC	490E		INTERP CLSCL ANTQ CH		3CR
	91	907653 W 19.00-22.00			
EDUC	490F		INTRO PROB LANG DEV		3CR
	91	907906 W 19.00-22.00			
EDUC	490G		MTH ANX/MTH LRNG SK		3CR
	91	908158 TH 19.00-22.00			
EDUC	590W		FAIRY TALES REVISTED		3CR
	91	908401 TU 19.00-22.00			
EDUC	490I		SELF DIRECT,SELF AST		3CR
	91	908658 M 19.00-22.00			
EDUC	590X		SEX ROLE STEREOTYPNG		3CR
	91	908901 M 19.00-22.00			
H-U-M S-E-R-V-/-A-P-P-L B-E-H-A-V S-C-I-E-N-C-E-S					
EDUC H	320*		HUMAN RELATIONS LAB		3CR
SEE COURSE DESCRIPTION FOR DAYS AND TIMES					
	1	909153 BY ARRGT			
EDUC H	322*		EDUCATION OF TH SELF		3CR
	1	909406 M 19.00-22.00			
EDUC H	490N		INTRO FAMILY COUNS		3CR
	91	909653 TU 19.00-22.00			
I-N-S-T-R-U-C-T-I-O-N-A-L L-E-A-D-E-R-S-H-I-P					
EDUC I	5900		METHODS OF TEACHING ESL		3CR
	91		W 3.30-18.30		SPFLD
E-N-G-L-I-S-H					
ENGL	131*		SOCIETY AND LIT	C	3CR
	1	909906 TH 19.00-22.00			
ENGL	150*		EXPOSITORY WRITING		3CR
	1	910152 W 19.00-22.00			
ENGL	171*		MAJOR BRIT WRITERS	C	3CR
	1	910405 TU 19.00-22.00			
ENGL	261*		MOD NOVEL 1890-1930	C	3CR
	1	910652 M 18.30-21.30			NHAMP

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
E-N-T-O-M-O-L-O-G-Y					
ENT	226*		INSECTS AND MAN	E	3CR
	1	910905 W 19.00-22.00			
F-O-O-D A-N-D R-E-S-O-U-R-C-E E-C-O-N-O-M-I-C-S					
F&R EC	121*		WORLD FOOD & RES ECO	D	3CR
	1	911157 M 19.00-22.00			
F-O-O-D E-N-G-I-N-E-E-R-I-N-G					
FD ENG	261*		HOUSE DES & CONST		3CR
	1	911400 M 19.00-22.00			
F-R-E-N-C-H					
FRENCH	120*		ELEMENTARY FRENCH		3CR
	1	911657 MW 19.45-21.45			
F-O-O-D S-C-I-E-N-C-E & N-U-T-R-I-T-I-O-N					
FS&N	130*		NUTRITION & PEOPLE	E	3CR
	1	911900 TU 19.00-22.00			
G-E-N-E-R-A-L B-U-S-I-N-E-S-S F-I-N-A-N-C-E					
GB FIN	260*		INTRO TO LAW		3CR
	1	912152 TU 19.00-22.00			
GB FIN	301*		CORPORATION FINANCE		3CR
	1	912405 W 18.30-21.30			NHAMP
GB FIN	310*		FIN INSTITUTIONS		3CR
	1	912652 TH 19.00-22.00			
H-I-S-T-O-R-Y					
HIST	140*		PR EUR HIS 1500-1815	C	3CR
	1	912905 W 19.00-22.00			
HIST	150*		DEV AMER CIV TO 1876	C	3CR
	1	913157 TH 19.00-22.00			PALM
HIST	151*		DEV AMER CIV 1876 ON	C	3CR
	1	913400 TH 19.00-22.00			
HIST	297P		SP TPC-AMER HLTH CAR		3CR
	91	913657 TU 19.00-22.00			
HIST	364*		THE CIVIL WAR ERA	C	3CR
	1	913900 M 19.00-22.00			
H-O-M-E E-C-O-N-O-M-I-C-S					
HOM EC	272*		PRIN & CON RETAIL		3CR
	1	914152 M 19.00-22.00			
HOM EC	391A		SEM-RETAIL MRCHD SNG		3CR
	91	914405 TH 19.00-22.00			
H-O-T-E-L R-E-S-T & T-R-A-V-E-L A-D-M-I-N					
HRTA	100*		INTRODUCTION		3CR
	1	914652 M 19.00-22.00			
HRTA	493A		SEM-ADV BEVERGE MGT		3CR
	91	914905 W 19.00-22.00			

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE	CREDIT LOCATION
J-O-U-R-N S-T-U-D-I-E-S					
JS	200*		INTR NEWS & RPTNG		3CR
	1	915157	TH 19.00-22.00 LAB FEE $5.00		
JS	291S		SEM-EDTG SPEC PUB		3CR
	91	915400	W 19.00-22.00		
L-E-G-A-L S-T-U-D-I-E-S P-R-O-G-R-A-M					
LEGAL	250*		INTRO LEGAL STUDIES		3CR
	1	915657	TH 19.00-22.00		
L-I-N-G-U-I-S-T-I-C-S					
LING	101*		PEOPLE&THEIR LANGUAG	C	3CR
	1	915900	TU 19.00-22.00		
LING	492A		SEM-STRUCT AMER ENGL		3CR
	91	916152	M 19.00-22.00		
M-A-T-H-E-M-A-T-I-C-S					
MATH	101*		ALGEBRAIC REVIEW		1CR
			CLASS MEETS 1/30-3/1.		
NO ADDS, DROPS OR WITHDRAWALS AFTER 2/6.					
	1	916405	TUTH 19.00-20.30		
MATH	102*		ANAL GEOM/ELEM FUNC		1CR
			CLASS MEETS 3/6-4/10.		
NO ADDS, DROPS CR WITHDRAWALS AFTER 3/13.					
	1	916652	TUTH 19.00-20.30		
MATH	103*		PRECALC TRIG		1CR
			CLASS MEETS 4/12-5/10.		
NO ADDS, DROPS CR WITHDRAWALS AFTER 4/19.					
	1	916905	TUTH 19.00-20.30		
MATH	121*		MATH FOR BUSINESS II	E	3CR
	1	917157	MW 19.00-20.30		
MATH	128*		CALC LIFE-SOC SCI II	E	3CR
	1	917400	TUTH 19.00-20.30		
M-A-N-A-G-E-M-E-N-T					
MGT	301*		PRINCIPLES OF MGT		3CR
	1	917657	W 19.00-22.00		
	2	917708	TH 19.00-22.00		PALM
MGT	314*		PERSONNEL MANAGEMENT		3CR
	1	917955	TU 19.00-22.00		
MGT	331*		ADMIN THEORY		3CR
	1	918203	M 19.00-22.00		
MGT	365*		BUS & ITS ENVIRON		3CR
	1	918450	W 19.00-22.00		
MGT	444*		MGT-UNION RELS I		3CR
	1	918703	TH 19.00-22.00		
M-I-C-R-O-B-I-O-L-O-G-Y					
MICBIO	150*		BIOL OF MICROORGNSMS	E	3CR
	1	918950	M 19.00-22.00		
M-A-R-K-E-T-I-N-G					
MKTG	301*		FUND OF MKTG		3CR
	1	919208	TH 19.00-22.00		
MKTG	423*		DIST CHANNELS & SYST		3CR
	1	919455	TUTH 18.30-20.00		
MKTG	459*		MKTG STRATEGY		3CR
	1	919708	W 19.00-21.30		
M-U-S-I-C					
MUSIC	100*		APPRECIATION-INTRO	C	3CR
	1	919955	M 19.00-22.00		
P-H-I-L-O-S-O-P-H-Y					
PHIL	100*		INTRO TO PHIL	C	3CR
	1	920207	TU 19.00-22.00		
PHIL	161*		PRBLM SOCIAL THOUGHT	C	3CR
	1	920454	TH 19.00-22.00		
P-H-Y-S-I-C-S					
PHYSIC	100*		PHYSICS FOR POETS	E	3CR
	1	920707	W 19.00-22.00		
PHYSIC	119*		PHYS APPLD TO CON PR	E	3CR
	1	920954	M 18.30-21.30		NHAMP
PHYSIC	142*		PHYS-LIFE SCI MAJ II	E	4CR
LEC	1	921202	TU 19.00-22.00		
LAB	1	921257	TH 19.00-22.00		
P-L-A-N-T & S-O-I-L S-C-I-E-N-C-E-S					
PLSOIL	100*		BASIC PLANT SCIENCE	E	3CR
	1	921500	TH 19.00-22.00		
PLSOIL	120*		ORG FARM & GARDENG	E	3CR
	1	921757	W 19.00-22.00 LAB FEE $7.50		
P-O-L-I-S-H					
POLISH	250*		INTRO TO POLISH PPL	C	3CR
	1	922005	M 19.00-22.00		PALM
P-O-L-I-T-I-C-A-L S-C-I-E-N-C-E					
POLSCI	121*		WORLD POLITICS	D	3CR
	1	922252	TU 18.30-21.30		NHAMP
POLSCI	320*		PUB ADMINISTRATION	D	3CR
	1	922505	W 19.00-22.00		
P-S-Y-C-H-O-L-O-G-Y					
PSYCH	100*		ELEMENTARY PSYCH	D	3CR
	1	922752	M 19.00-22.00		
PSYCH	110*		PSYCH AS NAT SCI	D	3CR
	1	923000	W 19.00-22.00		
PSYCH	150*		PSYCH SOCIOL SCI	D	3CR
	1	923257	TU 19.00-22.00		
PSYCH	205*		EDUCATIONAL PSYCH	D	3CR
	1	923500	W 19.00-22.00		
PSYCH	208*		PSYCHOLOGY OF WOMEN		3CR
	1	923757	W 18.30-21.30		NHAMP
PSYCH	370*		PERSONALITY	D	3CR
	1	924005	M 19.00-22.00		
PSYCH	480*		MENTAL RETARDATION		3CR
	1	924252	M 19.00-22.00		PALM
PSYCH	585*		THEOR & PRACT COUNSL		3CR
	1	924505	TU 19.00-22.00		
PSYCH	591A		SEM-PSYC OF OBESITY		3CR
	91	924752	TH 19.00-22.00		

DEPT	COURSE SEC	SCHEDULE NUMBER	TITLE MEETING TIMES	CORE LOCATION	CREDIT
R-H-E-T-O-R-I-C					
RHET	100C		RHET OF LANG AND WR	B	3CR
	91	925000	M 19.00-22.00		
	92	925055	TH 18.30-21.30		NHAMP
RHET	100G		RHET OF LANG AND WR	B	3CR
	91	925308	W 19.00-22.00		
B-U-S-I-N-E-S-S A-D-M-I-N-, S-C-H-O-O-L O-F					
S BA	513*		COBOL DATA BASE DSGN		3CR
			UNDERGRADUATE CREDIT ONLY.		
	1	925555	W 19.00-22.00		
S-O-C-I-O-L-O-G-Y					
SOCIOL	105*		SELF,SOC & INTER REL	D	3CR
	1	925808	W 19.00-22.00		
SOCIOL	107*		CONT AMER SOC	D	3CR
	1	926050	TU 19.00-22.00		
SOCIOL	460*		URBAN SOCIOLOGY	D	3CR
	1	926303	TH 18.30-21.30		NHAMP
S-P-A-N-I-S-H					
SPAN	120*		ELEMENTRY SPANISH II		3CR
	1	926550	M 19.00-22.00		
SPAN	181*		CRAL SPANISH II		3CR
	1	926803	W 19.00-22.00		
S-T-A-T-I-S-T-I-C-S					
STATIS	140*		STAT FOR BUS	E	3CR
	1	927055	MW 19.00-20.30		

THE UNIVERSITY OF MASSACHUSETTS

FINE ARTS CENTER

proudly presents

CONCERTS FOR YOUNG PEOPLE

A series of programs designed for elementary and secondary students who attend with their teachers during the school day.

THE BOSTON SYMPHONY

Friday, February 16
10:30 a.m.
for Upper Elementary
and Secondary students
Tickets: $2.50

NEW BLACK EAGLE JAZZ
and
ANTHONY DAVIS QUARTET

Tuesday, March 13
10:30 a.m.
for Secondary students
Tickets: $1.00

MANDALA FOLK DANCERS

Monday, April 30
10:30 a.m.
for Elementary
students
Tickets: $1.00

CELEBRATION MIME

Tuesday, May 8
10:30 a.m.
for Upper Elementary
and Secondary students
Tickets: $1.00

If you would like to have your child participate with his or her school group, please contact Beverly Kratochvil, education program coordinator for the Fine Arts Center for more information about the series. Telephone 549-4970 or write to: Concerts for Young People, Hasbrouck Lab, University of Massachusetts, Amherst, MA 01003.

Bachelor of General Studies

The BGS Degree

The Bachelor of General Studies (BGS) is a University of Massachusetts degree available to part-time, non-traditional students through the Division of Continuing Education. The BGS is designed to be flexible and responsive to special needs that cannot be met in regular University degree programs. It requires considerable initiative and self-knowledge on the part of the student, and offers someone with firmly established goals a chance to take an active part in planning his or her program. The BGS degree has been used advantageously by three different groups of Continuing Education students: 1) those who would like to orient their degree more specifically toward a career area that demands interdisciplinary study; 2) those who are already established in a career but would like the benefits of a general liberal arts degree; 3) those who are looking for a specific match of disciplines, for example, philosophy and art, or organizations and human behavior.

The Continuing Education advising staff and faculty advisors chosen by the student can aid in the design of the BGS area of concentration, which is usually 30 credits of junior-senior level college or university work, at least 15 of which must be UMass credits. This design degree, expressed as a list of courses and a thorough written justification in the BGS Proposal, will be judged both by the faculty advisor and the BGS Program Committee of Continuing Education.

A maximum of 75 semester credits from accredited colleges and/or universities may be used in the required 120 credits needed for graduation with a BGS. Other credits included in the transfer total may be those earned through the College Level Examination Program (CLEP) tests, or credits for certain types of training in the U.S. military service. Graduates must maintain a grade-point average of at least 2.0 on a 4.0 scale and fulfill the University core requirements. To ensure good program design and thorough advising, BGS candidates who came from previous full-time study at UMass/Amherst will ordinarily complete at least 15 credits of their BGS concentration in part-time study with the Division of Continuing Education.

The Continuing Education advising staff recognizes the difficulties inherent in creating and justifying an ambitious and original course of study. We encourage students, whatever the stage of their planning, to discuss their ideas for a BGS degree with a Continuing Education advisor.

BGS Areas of Concentration

Three structured BGS options presently exist. Criminal Justice and Fire Science build opon related Associate Degrees, while the Liberal Studies option satisfies the 30 credit "area of concentration" requirement.

BGS Criminal Justice

The BGS in Criminal Justice is designed to build upon the Associate's degree in Law Enforcement (or its equivalent in appropriate course work) from the community colleges. People working in the criminal justice professions, and those considering such careers, should find this degree flexible enough to meet their special needs as part-time students and their particular goals in criminal justice studies. This cooperative effort between UMass/Amherst and the community colleges is intended to produce highly competent officers for the police, courts and corrections institutions of the Commonwealth. No BGS Proposal is required, but interested students should ask for the complete Criminal Justice information sheet available from Transfer Affairs Office, 208 Whitmore, (413) 545-3430.

BGS Fire Science

The BGS in Fire Science is designed to build upon the Associate's degree in Fire Science Technology (or its equivalent in appropriate course work) from the community colleges. Firefighters in both public and private agencies, and people considering such careers may choose one of three possible career tracks: Fire Science Administration, Fire Science Education and Fire Science Technology. There is considerable flexibility within the requirements of each track allowing student and advisor to plan a program tailored to specific needs and interests. This cooperative effort between UMass/Amherst and the community colleges is intended to produce highly competent profesional firefighters for the Commonwealth. No BGS Proposal is required, but interested students should ask for the complete Fire Science information sheet available from Transfer Affairs Office, 208 Whitmore, (413) 545-3430

BGS Liberal Studies

The Liberal Studies option offers part-time students an opportunity to take specially designed offerings in the humanities, social sciences and natural sciences taught by outstanding professors and presented at times and locations specifically selected to accommodate the pre-established schedules of adults.

The Liberal Studies option was developed for mature men and women who recognize the value of a broad, multidisciplinary path to knowledge and understanding. Each course offered under this program is chosen to enhance cultural sensitivity, develop an understanding of the past and encourage personal growth.

Ten courses (30 semester credits) taken at the students' convenience will satisfy the BGS "area of concentration" requirement or may stand independently as a Certificate of Liberal Studies. In all respects, a candidate for a BGS degree must fulfill the requirements listed above. Degree plans should be discussed as early as possible with a Continuing Education advisor.

For a complete list of BGS courses offered this semester, see the Course Descriptions section, page

EVENING COLLEGE - MAIL-IN REGISTRATION - SPRING 1979
DIVISION OF CONTINUING EDUCATION - UNIVERSITY OF MASSACHUSETTS/AMHERST

Name CZ-A05 — LAST NAME | FIRST NAME | INITIAL

Home Address BA1 — NUMBER & STREET

CITY | STATE | ZIP CODE

Home Tel — Area Code | If No Phone, Write "None" | Country of Citizenship (other than U.S.)

Local Address (if different from home) BA2 — NUMBER & STREET | Phone Number

CITY

STATE | ZIP CODE

Have you ever registered for a course in the Division of Continuing Education?
☐ No ☐ Yes When? _____ month/year

STUDENT NUMBER

STUDENT PLEASE CODE APPROPRIATE BOXES

Please note that this information does not influence the fee schedule.

☐ 'G' - Graduate / 'U' - Undergrad

F L ☐ 'M' - Male / 'F' - Female

☐ 'S' - Single / 'M' - Married / 'D' - Divorced / 'W' - Widowed

☐ 'N' - Non-Vet / 'V' - Other Vet

☐ 'M' - Mass. Res. / 'O' - Other State / 'F' - Foreign

☐ 'CT' - Citizen / 'UN' - Not Citizen

BIRTHDATE ☐☐ month ☐☐ day ☐☐ year

Social Security Number

Schedule Number	Department	Course Number	Section	Course Title	Number of Credits	Course Fee DO NOT INCLUDE LAB FEES
						$
						$
						$
						$

OFFICE USE ONLY

Total Amount Due $ . . . . .
Amount Received $ . . . . . .
Check ☐ No. . . . . .
Cash ☐ Credit Card ☐
Received By . . . . . .
Date Received . . . . . .
Comments

NOTE:
DO NOT INCLUDE LAB FEES with registration payment; lab fees are assessed after classes begin.
FULL PAYMENT MUST ACCOMPANY MAIL REGISTRATION. Make checks payable to:
Division of Continuing Education
Mail registration form and payment to:
Division of Continuing Education
Hasbrouck
University of Massachusetts
Amherst, MA 01003

CREDIT CARD PAYMENT
Please bill my:
☐ ☐ ☐

Mastercharge Bank No.

Expiration Date

Credit Card Number

Signature

TOTAL COURSE FEES		$
REGISTRATION FEE		$
OPTIONAL FEES		
Fine Arts Fee	$ 3.00	$
Health Service	$58.50	$
Insurance Fee	$42.00	$
Student activities Fee	$35.00	
TOTAL AMOUNT DUE AND ENCLOSED		$

CREDIT-FREE WORKSHOPS · REGISTRATION · SPRING 1979

DIVISION OF CONTINUING EDUCATION · UNIVERSITY OF MASSACHUSETTS/AMHERST

The following information must be provided before your application can be processed.

Name Mr Ms FIRST NAME INITIAL LAST NAME

Address NUMBER STREET

CITY STATE ZIP CODE

Phone No. Area Code If No Phone, Write "None"

Work Phone Area Code If No Phone, Write "None"

Marital Status Age Female Male

OPTIONAL: Your answers to these questions will guide us in planning future workshops. The information will be confidential if you choose to answer.

1. How did you find out about these workshops?
2. What other workshops would you like to have offered?
3. Occupation Full time Part time
4. Are you a student? Full time Part time
   Where?
5. Have you taken a CE workshop before?

1. Workshop No. Title

Section No Day Time Date Fee

*Alternative Choice No Title

Section No Day Time Date Fee

2. Workshop No. Title

Section No Day Time Date Fee

*Alternative Choice No Title

Section No Day Time Date Fee

3. Workshop No. Title

Section No Day Time Date Fee

*Alternative Choice No Title

Section No Day Time Date Fee

4. Workshop No. Title:

Section No Day Time Date Fee

*Alternative Choice No Title:

Section No Day: Time Date: Fee

Alternative Choice - In the event of cancellation or overenrollment, your second choice

FULL PAYMENT MUST ACCOMPANY MAIL REGISTRATION

Make checks payable to **Division of Continuing Education, 404009**

Send to: **Credit-Free Workshops,**
Division of Continuing Education
University of Massachusetts
Amherst MA 01003

TOTAL WORKSHOP FEES $

TOTAL AMOUNT DUE AND ENCLOSED $

OFFICE USE ONLY

404009

Total Amount Due $

Amount Received $

Received By

Date Received

Comments

Cash

Check No.

Credit Card

S.C.F.W.

CREDIT CARD PAYMENT

Please bill my

AMERICAN EXPRESS master charge VISA

Master Charge Bank No.

Expiration Date

Credit Card Number

Signature

Registration Reminder

By Mail: 12·1·78 to 1·12·79
In Person: 1·17 to 1·20·79

Remember·Register Early

Credit-Free Workshop Program

The Credit-Free Workshop Program is a series of workshops offered by the Division of Continuing Education specifically for persons interested in expanding their skills, furthering their careers, improving their community life, or partaking of the expertise offered by others, usually experts and teachers in their fields. The workshops are for those for whom academic credit is not a priority.

Admission

The Division of Continuing Education has an open admissions policy with regard to the Credit-Free Workshops it offers. Interested persons may enroll for as many workshops as they wish without concern for their educational background.

Sixty and Over Policy

Persons aged sixty and over may register, free of charge, for any Credit-Free Workshop, provided that the workshop has met its minimum enrollment. Registrations will be accepted and applicants will be notified when the minimum is reached.

Mail Registration

To register by mail, complete the workshop registration form included in this publication, and mail by February 9 with full payment to:

Credit-Free Workshops
Division of Continuing Education
University of Massachusetts
Amherst, MA 01003

Make checks payable to: Continuing Education, 404009. Mail registrations must be postmarked February 9 at the latest.

Phone Registration

Students choosing to make payment by American Express, Master Charge or VISA may register for Credit-Free Workshops by telephone. Please select workshops carefully, and telephone the Continuing Education Records Office at (413) 549-4970. Phone registrants must supply all personal data requested on the mail-in registration form (see page 23) and all credit card numbers including Master Charge Bank number and expiration date.

Workshop Confirmations

When registration for a workshop meets the minimum number, registrants will be notified by mail with a class card which includes notice of the meeting place. Most workshops will be confirmed during the week prior to the beginning of workshops. Please do not call the office for earlier confirmation; **please wait** until one week before the workshop is scheduled to begin.

In-Person Registration

Walk-in registrations will be accepted at any time on a space-available basis. Come to the Continuing Education Office located in Room 113, Hasbrouck. Office hours are: During the period February 12 through March 10.

Monday through Thursday 8:30 a.m. to 7 p.m.
Friday 8:30 a.m. to 5 p.m.
Saturday 10 a.m. to 1 p.m.
Regularly:
Monday through Friday 8:30 a.m. to 5 p.m.

Fees

Credit-Free Workshops are self-funding and, in general, fees have been computed on the basis of the number of contact hours which a workshop meets. In order to make each workshop self-supporting, a minimum number of enrollments is usually necessary. Fees are included in the workshop descriptions beginning on page

Payment

Full payment of workshop fees must be made at the time of registration. Payment may be made by check, money order, American Express, Master Charge or VISA. To make a credit card payment for a mail registration, please complete the credit card payment section of the mail registration form. All credit card identification numbers (including bank number for Master Charge cards), credit card expiration date and credit card holder's signature must be included.

Refund and Withdrawal

Full refund will be made by mail if a workshop is canceled due to underenrollment.

If a student wishes to withdraw from a workshop, the Continuing Education Office must be notified in writing, by mail, or in person during the regular office hours. Notifying the instructor or ceasing to attend class does not constitute official withdrawal. There will be an 80% refund for official withdrawal *after* the first workshop meeting and *before* the second meeting. There will be a 60% refund *after* the second workshop meeting and *before* the third. *After* the third workshop meeting, there will be no refund.

Refund Schedule

After:

First meeting	80%
Second meeting	60%
Third meeting	NO REFUND

Exceptions

There are NO REFUNDS for workshops with schedules covering *less than three weeks* unless withdrawal is effected prior to the beginning of the workshop. In cases of withdrawal prior to the beginning of a workshop, a full refund will be processed once the Continuing Education Office is notified in writing or in person.

Other Important Information

Cancellations and Changes

It sometimes becomes necessary for the Division to cancel, postpone or combine workshops or to change instructors. Changes are usually kept to a minimum.

Weather cancellations are announced over local radio stations.

Workshop Locations

Most workshops will take place in Amherst. Exact locations will be announced by mail once students have registered.

Reading Material

Reading material information may be obtained from the instructor on the first night of the workshop.

Supplies/Expenses

Some workshops require supplies which are to be paid for by each participant if he or she chooses to have them. The estimated cost of these supplies is listed at the end of the workshop description. Since expense money is estimated and optional, it is not to be included in workshop fee, and students should not pre-pay.

Parking

After 6 p.m. there are no parking restrictions in *legal* parking places.

Calendar

	December 11-February 9	Mail Registration
	After February 9	Walk-In Registration (space available basis)
Monday	February 26	Workshops begin (unless otherwise noted in the workshop description)
Saturday	March 17	Spring recess begins after last class
Monday	March 26	Classes resume
Monday	April 16	Holiday-no classes
Wednesday	April 18	Monday workshop schedule will be followed (Wed workshops do not meet)
Wednesday	May 16	Workshops end (workshop schedules vary-consult workshop description.)

Schedule of Workshops

MONDAY

Calligraphic Letter Forms
Calligraphy
Current Issues in Psych Today
Darkroom Procedures-Basic
Disco Dance-Beginning
Figure Drawing
Fiddle-Beginning
Folk Guitar-Basic
French-Intermediate
Peer Counseling
Printmaking
Self Defeat & Self Actualization
Sign Language & Finger Spelling-Advanced
Stained Glass-Advanced
Swahili-Basic
Swedish-Basic

TUESDAY

Bartending
Batik
Bluegrass Banjo-Basic
Darkroom Procedures-Basic
Darkroom Procedures-Intermediate
Disco Dance-Beginning
Drawing-Basic
Dreams & Dream Interpretation
Fiddle-Advanced/Beginning
Garment Design
Growth & Development of Parents
Hire Yourself an Employer
Home & Landscaping
Italian: Basic
Musical Comedy
Print Collecting
Sign Language & Finger Spelling-Beginning
Stained Glass-Basic
Tropical Plant Families
Womens' Self Defense

WEDNESDAY

Acupuncture Massage-Introduction
Art of Illumination
Bicycling
Bobbin Lace
Creative Drama
Darkroom Procedures-Intermediate
Design a Solar Greenhouse
French-Basic
German-Basic
Hatha Yoga-Beginning
Hatha Yoga-Intermediate
Investment Planning
Jazz/Rock Guitar/Basic
Law for Non-Lawyers
Monoprinting
Photography-Basic
Reading Improvement
Studio Painting
Tap Dancing-Beginning
Traditional Food for a New Age
Watercolor Painting

THURSDAY

Ballroom Dancing
Bookkeeping-Basic
Harmonica
Marcrame-Advanced
Photography-Basic (Palmer)
Quiltmaking
Review English Grammer
Spanish-Basic
Wild Food/Herbal Medicine
Womens' Health Care
Writing for Self Discovery

SATURDAY

Chainsaw Use & Maintence

MONDAY & WEDNESDAY

Aerobic Dance
Dance Exercise
Jazz Dance-Beginning
Modern Dance-Beginning
Tennis-Beginning

TUESDAY & THURSDAY

Ballet-Beginning
Circus Arts
Jazz Dance-Intermediate
Pottery
Tennis-Intermediate

ODD SCHEDULES

Advanced First Aid
Arts Management Series
College Level Exam Review
Communities in Action Series
CPR
Forestry Principles
Graduate Management Admissions Test Review
Law School Admissions Test Review
Space, 1979
Standard First Aid

Workshop Descriptions

ARTS & CRAFTS

ART OF ILLUMINATION James Sadler L001
Sec. 1 Wednesday, 7:30-9:30 p.m., 10 weeks, begins February 28, $45

Calligraphers have always sought to bring other visual elements such as illustration of the text or elaboration of the lettering or surrounding spaces with decorative design into their work. While becoming familiar with the history of illumination, students also learn the major techniques of illumination and experiment with a variety of materials best suited for this work. (Expenses: $5-$10.)

BATIK Hyde Meissner L002
Sec. 1 Tuesday, 6-9 p.m., 10 weeks, begins February 27, $66.

Emphasis on mastering basic techniques of the medium; developing and transferring patterns, controlling wax applications with brushes and tjanting tools, using cold water dyes, methods of presenting finished batik. (Expenses: $12.)

BOBBIN LACE: "VADSTENAKNYPPLING" Margareta Tristan L003
Sec. 1 Wednesday, 6:30-9:30 p.m., 10 weeks, begins February 28, $66.

Vadstena is an old town on the west coast of Sweden, where nuns in the Vadstena nunnery made lace about 100 years ago. Mastering this art is the subject of this workshop. Work at your own speed and learn 10 different patterns, the first very simple. All ages from 10 years are welcome. (Expense: $5-$25.)

CALLIGRAPHY: BASIC James Sadler L004
Sec. 1 Monday, 6-8 p.m., 10 weeks, begins February 26, $45.

Basic italic alphabet; advanced alphabets introduced. Individual attention. (Expenses: $5.)

CALLIGRAPHIC LETTER FORMS James Sadler L005
Sec. 1 Monday, 8-10 p.m., 10 weeks, begins February 26, $45.

After exploring the stylistic changes in calligraphy since early Rome, each student chooses an alphabet to study in detail. Assignments increase awareness of individual alphabets. Concludes with individual projects. (Expenses: $5.)

CIRCUS ARTS Davis Robinson L006
Sec. 1 Tuesday and Thursday, 7-9 p.m., 5 weeks, begins February 27, $45.

Develops abilities in the field of circus arts with focus on exercise, juggling, mime and character development. Develops individuals' ability to integrate and perform acquired skills; critiques; possible group show at the end of the workshop.

DRAWING: BASIC Susan E. Ziller L007
Sec. 1 Tuesday, 7-10 p.m., 10 weeks, begins February 28, $65.

Acquaints students with the many facets of the drawing medium. Drawing in black and white using pencil, charcoal, ink and crayon. Basic fundamentals of line, tone, texture and composition stressed. (Expenses: $10.)

FIGURE DRAWING Jennifer B. French L008
Sec. 1 Monday, 7-9:30 p.m., 10 weeks, begins February 26, $55.

For those with little or no experience in drawing the figure. Study of body structure and proportion, contour, gesture and modeling. Emphasis on intensive drawing exercises to improve individual observations. Live model for each class session. (Expenses: $20.)

***GARMENT DESIGN AND CONSTRUCTION BASED ON ETHNIC PRINCIPLES Deborah Robson L009**
Sec. 1 Tuesday, 7-10 p.m., 8 weeks, begins February 27, $66.

Design and construction of at least one garmet. Complexity of each project depends on the student's background and ambition. Discussion of existing garments, pattern and book resources, types of fabrics and their characteristics, design and garment, design of garment's component pieces, types of fibers and the way to use them structurally and decoratively. Students should be proficient in at least one type of textile work—patchwork, knitting, sewing or weaving. Meets in Leverett.

MACRAME: ADVANCED Elaine Barker L010
Sec. 1 Thursday, 7-9 p.m., 10 weeks, begins March 1, $46.

For those with basic knowledge of square knot, half hitch, larks head. Emphasis on construction of a sampler of complex forms—leaf, daisy, arrow heads, double cross, diamonds, solid angular forms and fancy sinnets. Also included, application of weaving to macrame and three-dimensional forms. Students work on items in class and are encouraged and assisted in special interest projects. (Expenses: $10.)

MONOPRINTING Leslie Kramer L011
Sec. 1 Wednesday, 7-10 p.m., 3 weeks, begins February 28, $24.

Monoprinting or monotype is a combination of painting, drawing and printmaking which provides a unique non-reproducible image. Workshop includes subtractive, additive and transfer-printing techniques. Students work in color as well as black and white. A method of printing not requiring a press is demonstrated. No previous art experience required. (Expenses: $10-$15.)

POTTERY Fred Englander L012
Sec. 1 Tuesday and Thursday, 7:30-9:30 p.m., 10 weeks, begins February 27, $85.

Use of potter's wheel, hand-building techniques and applications of glazes to stoneware clay fired to cone 10 in reduction atmosphere. Includes opportunity to fire 8 pots. Additional pots may be fired for a minimal fee. (Expenses: $5.)

PRINT COLLECTING AND APPRECIATION Leslie Kramer L013
Sec. 1 Tuesday, 7-9 p.m., 4 weeks, begins February 27, $21.

For those on a modest budget who would like to collect art. Lecture-discussions on what to look for when buying an original print. Visits to a local museum or gallery to cover the range of art work in this area. Topics include: the difference between etching, lithography and serigraphy, what determines the value of an original print and care and display of artwork. Two field trips to be arranged. Recommended reading: Zigrosser, *A Guide to the Collecting and Care of Original Prints.*

PRINTMAKING Robin Freedenfeld L014
Sec. 1 Monday, 7-10 p.m., 10 weeks, begins February 26, $65.

Basic techniques in etching, dry point, engraving and collagraphy. From the preparation of the plates to the fundamentals of pulling an edition. Experimentation is encouraged. Emphasis on mastering techniques to produce a completed image that is aesthetically pleasing. Meets in Northampton. (Expenses: $15-$20.)

QUILTMAKING Karin Lake L015
Sec. 1 Thursday, 7-9 p.m., 10 weeks, begins March 1, $45.

Quilting techniques of patchwork, applique, pre-stuffed, trapunt. Emphasis on experientially learning different techniques and the step-by-step process of completing a quilt to carry over to future quilting. One quilt and at least one pillow completed by end of workshop. Students should have access to a sewing maching for use outside class or be prepared to sew by hand. (Expenses: $15-$25.)

***STAINED GLASS: BASIC Jane O'Connor L016**
Sec. 1 Tuesday, 6:30-9:30 p.m., 8 weeks, begins February 27, $65.

A brief history of stained glass, glass types and their applications in windows, lamp shades and other art forms. Covers both lead and copper fall methods of stained glass, cutting techniques, designing with glass and construction of flat and three-dimensional pieces. Students must have access to their own tools. Meets in Shutesbury. (Expenses: $10-$50, depending upon access to tools; cost mainly for tools.)

***STAINED GLASS: ADVANCED Jane O'Connor L017**
Sec. 1 Monday, 6:30-9:30 p.m., 8 weeks, begins February 26, $65.

Advanced techniques in glass. Studio facilities are open to explore on an individual basis. Copper foil and leading techniques, acid etching, bending, mold making, painting and firing are open, subject to interest. Students must provide their own tools and must have prior experience with stained glass techniques. Meets in Shutesbury. (Expenses: $20.)

STUDIO PAINTING Linda Forte L018
Sec. 1 Wednesday, 6-9 p.m., 10 weeks, begins February 28, $65.

Basic studio in beginning and advanced painting. Self-expression, color, design, dimension and composition emphasized. Attention to approaching the canvas, making decisions on color and theme, purchasing supplies and stretching the canvas. Bring white paper, scissors, craypas and pastels to the first meeting. (Expenses: $15.)

WATERCOLOR PAINTING Betsy Feick L019
Sec. 1 Wednesday, 7-10 p.m., 10 weeks, begins February 28, $65.

Explores both traditional and innovative ways to use the watercolor medium. Students work from still-life, fantasy and/or memory, emerging with a personal imagery, an expanded sense of inner resources and new painting skills. (Expenses: $10-$15.)

WEAVING Mary Canner L020
Sec. 1 Tuesday, 7-10 p.m., 10 weeks, begins February 27, $67.

Individualized instruction to support beginning and intermediate students in technical and creative aspects of weaving. Students may work on four harness frame looms constructed in class or on floor looms available on a rental basis. Emphasis on both mastery of technical skills and exploration of creative possibilities. (Expenses: $10-$15.)

***WOOD CARVING Karyl Lynch L021**
Sec. 1 Tuesday, 7-10 p.m., 8 weeks, begins February 27, $66.

Emphasizes relief carving for beginners. Introduces styles and methods of wood carving, type and sources of wood and their availability, carving techniques, tool sharpening, finishing and sanding techniques, wood drawing and uses of power tools in carving. Students work with hand tools and wood to gain an understanding of techniques and problems. (Expenses: $25.)

** These workshops are presented in cooperation with Leverett Craftsmen and Artists, a non-profit educational organization dedicated to promoting public education.*

ARTS MANAGEMENT

This series of arts management workshops is designed to benefit anyone interested or involved in the arts. Taught in conjunction with the Bachelor of General Studies course in Arts Management (see Course Description section), each session will focus specifically on an arts management topic; the Arts Extension Service staff, as well as guest lecturers, will teach the workshops. Participants are invited to discuss problems related to their arts organization or project. AES consulting services are available for additional help in solving management problems in the arts

THE PURPOSE OF OBJECTIVES OF YOUR ARTS ORGANIZATION Robert Lynch, Margot Willett, Rick Feldman L022
Sec. 1 Thursday, 7-9:30 p.m., February 15, $10.

The first step in building an effective arts organization is establishing its purpose and objectives. Focuses on a realistic purpose and then defines objectives that reflect that purpose. Includes the process of developing a long-range plan for the organization.

WORKING WITH PEOPLE Robert Lynch, Margot Willett, Rick Feldman L023
Sec. 1 Thursday, 7-9:30 p.m., February 22, $10.

Arts organizations never survive by the work of one person alone. Explores the skills, attitudes and approaches needed by an arts administrator or organization member in working with board of directors, staff, other members, artists, businesspeople and the general public. Covers community politics.

INVOLVING VOLUNTEERS IN THE ARTS Robert Lynch, Margot Willett, Rick Feldman L024
Sec. 1 Thursday, 7-9:30 p.m., March 1, $10.

Volunteers are a large part of the work force behind any arts organization. Focuses on attracting and motivating volunteers. Includes functions and responsibilities of the members of the Volunteer Board of Directors and how the paid staff and volunteers can work together for maximum benefit.

CREATIVE ARTS PROGRAMING Robert Lynch, Margot Willett, Rick Feldman L025
Sec. 1 Thursday, 7-9:30 p.m., March 8, $10.

Explores the creative process that is expected of the arts administrators as it applies to arts programming. Includes experiential activities resulting in the development of concrete ideas for arts programming. Some enjoyable surprises.

PRESENTING THE ARTS EVENT Robert Lynch, Margot Willett, Rick Feldman L026
Sec. 1 Thursday, 7-9:30 p.m., Mach 29, $10.

Step-by-step procedure to plan, coordinate, present and evaluate an arts event. Adaptable to any kind of event; includes a preview of how each workshop topic fits with others to make the arts event happen.

PUBLIC RELATIONS Robert Lynch, Margot Willett, Rick Feldman L027
Sec. 1 Thursday, 7-9:30 p.m., April 5, $10.

How effectively your arts organization relates to the public can make or break your program. An overview of what public relations in the arts is all about. Includes using the media, writing a press release and public service announcement, audience development techniques and general promotion methods.

RAISING FUNDS IN THE LOCAL COMMUNITY Robert Lynch, Margot Willett, Rick Feldman L028
Sec. 1 Thursday, 7-9:30 p.m., April 12, $10.

Whenever possible, arts programming should pay for itself. The

next step is finding money in the local community to support activities of the arts organization. Covers in-kind services, fund drives, underwriting and other fund-raising tools.

ARTS GRANTSMANSHIP AND BUDGETING FOR THE NOVICE Robert Lynch, Margot Willett, Rick Feldman L029
Sec. 1 Thursday, 7-9:30 p.m., April 19, $10.

Writing a successful grant proposal is an art in itself. Covers basic information for beginners on researching, writing and presenting proposals along with budget preparation and use. Sources for art grants.

LEGAL, FINANCIAL AND HUMAN ACCOUNTABILITY Robert Lynch, Margot Willett, Rick Feldman L030
Sec. 1 Thursday, 7-9:30 p.m., April 26, $10.

Arts organizations by definition serve the public. How are the needs and the desires of the public determined, and how is the organizaiton's success measured. Explores systems for establishing accountability to your audience, your community, your artists, your co-workers, your funding sources and yourself.

COMMUNITIES IN ACTION

Communities in Action is a program designed to meet some of the training needs of community organizations. The following workshops are intended for board members, staff and volunteers of citizen councils, and non-profit community organizations of all types.

Communities in Action and other training workshops can be offered by your organization in your own community. For information, please contact Stan Rosenberg, (413) 545-2040.

GETTING TO PAINT YOUR PICKET FENCES John Clobridge L031
Sec. 1 Thursday, 7-10 p.m., March 29, $11.

Novel approaches to volunteer recruitment utilizing modern marketing techniques. Practical application of Tom Sawyer, the genius of volunteer programming. Group simulation to demonstrate why people do what they do. (Expenses: $6.)

I'M ONLY A VOLUNTEER John Clobridge L032
Sec. 1 Wednesday, 7-10 p.m., February 28, $11.

Explores why people volunteer; examines the "mixed motives;" discusses organizations, such as that of the National Organization for Women (NOW), critical of volunteerism; affirms the ethical, economic, pragmatic and "utopian" rationales for non-paid citizen participation in human services. (Expenses: $6.)

DANCE

BALLET Ellen Inkellis MacDonald L033
Sec. 1 Tuesday and Thursday, 7-8:30 p.m., 10 weeks, begins February 27, $65.

For the interested person who has had little or no dance experience but has lots of enthusiasm. Depending on the level, offers the basics of ballet at a comfortable speed. Prepares for additional ballet study. Consistent attendance encouraged.

BALLROOM DANCING: BEGINNING Carolyn Nims L034
Sec. 1 Wednesday, 7-8 p.m., 10 weeks, February 28, $25.
Sec. II Wednesday, 8-9 p.m., 10 weeks, February 28, $25.

Fundamental steps of ballroom dancing: fox trot, waltz, polka, rhumba, tango, cha-cha, hustle and disco. Open to beginners and intermediates who wish to learn or review ballroom dancing on a basic level in preparation for more advanced work.

DANCE EXERCISE Andrea Taylor L035
Sec. 1 Monday and Wednesday, 7-8 p.m., 10 weeks, begins February 26, $45.

For the individual who seeks an environment less structured than a dance class; emphasis on corrective exercises and exercises to release tension. Requires enthusiasm and an enjoyment of getting and staying-in shape. Consistent attendance encouraged.

DISCO DANCE L036
Sec. 1 Monday, 7-8:30 p.m., 10 weeks, begins February 26, $36. Instructor: Patrick Leighton.
Sec. II Tuesday, 8:30-10 p.m., 10 weeks, begins February 27, $36. Instructor: To be announced.
NOTE: Section II only, students must wear rubber-soled shoes or stocking feet.

Covers the hustle as well as other disco styles and dances. Workshop begins with the basic rhythms of the hustle and progresses into the basic foot patterns. Techniques of leading and following are introduced at the beginning and stressed throughout. When students are secure in the basics, individual styles will be encouraged and advanced patterns will be developed.

JAZZ DANCE: BEGINNING Beth Hirschhaut L037
Sec. 1 Monday and Wednesday, 8-9:30 p.m., 10 weeks, begins February 26, $65.

Learn jazz dance through the techniques of Horton and Luigi. Discover and discipline the body through the enjoyment of learning basic jazz skills and routines. Little or no dance training necessary.

JAZZ DANCE: INTERMEDIATE Donna Potter-Astion L038
Sec. 1 Tuesday and Thursday, 5:30-7 p.m., 10 weeks, begins February 27, $65.

Develops basic skills learned in Jazz Dance: Beginning. Increased emphasis on different rhythms the body can move to and further exploration of jazz movement. Prerequisite: at least one semester of jazz dance

MODERN DANCE: BEGINNING Beth Hirschhaut L039
Sec. 1 Monday and Wednesday, 5:30-7 p.m., 10 weeks, begins February 26, $65.

Provides awareness of body and increases control, flexibility and stamina through an introduction to modern dance techniques of Horton, Cunningham and Limon. Emphasis on mind and body, working together as well as total involvement and enjoyment in the dance.

TAP DANCING: BEGINNING Ellen Inkellis MacDonald L040
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $45.

For those with little or no previous dance experience. Covers tap steps from flap and shuffle to maxiford and buffaloes while developing into routines. (Expenses: $3-$10, depending on taps).

EAST/WEST FOUNDATION

The following workshops are presented in cooperation with the East/West Foundation of Boston.

ACUPUNCTURE MASSAGE Ken Burns L041
Sec. 1 Wednesday, 6:30-9:30 p.m., 8 weeks, begins February 28, $55.

Acupuncture-massage, unlike Swedish massage, treats illnesses by readjusting the flow of ki along the acupuncture points and meridians. Requires no special knowledge or instruments, and

has been commonly practiced in the Orient for thousands of years. Covers basic Oriental methods of diagnosis and techniques to locate important points. Students learn to give complete massage.

WILD FOODS HERBAL MEDICINE Ken Burns L042
Sec. 1 Thursday, 6:30-8:30 p.m., 8 weeks, begins March 1, $55.

Sources of learning about local herbs. In addition to field and forest, discusses written materials and botanical reserves such as Arnold Arborium and the Garden of the Woods of the New England Wild Flower Society. Includes physical characteristics, season of flowering, favored terrain and traditional uses. Included: a brief survey of American, European, Russian, Chinese and Japanese herbal folk medicines; healing on the cosmological level and the Chinese element theory.

FOREIGN LANGUAGE/CONVERSATIONAL

FRENCH: BASIC Elise Mullen L043
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $45.

Intensive workshop designed for travelers to French-speaking countries. Required text: Logan and LeRoux, *French Conversational Practice,* $5.

FRENCH: INTERMEDIATE Elise Mullen L044
Sec. 1 Monday, 7-9 p.m., 10 weeks, begins February 26, $46.

Intensive workshop designed for travelers to French-speaking countries. Contains more vocabulary than basic workshop and discussions of French art, music, literature, as well as practical aspects for tourists.

GERMAN Dianne Doersam L045
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $45.

For those who want to learn enough conversational German to get along in a German-speaking country. Those with some knowledge of German also welcome. Spoken German, with phrases and expressions. Minimum of grammar.

ITALIAN Anthony Terrizzi
Sec. 1 Tuesday, 7-9 p.m., 10 weeks, begins February 27, $45.

For those who wish to understand and speak Italian for traveling or the enjoyment of learning a second language. Conversation with a minimum of grammar. Adapts to current or projected needs and interests of students. No previous knowledge of the language required. Required reading: Hall and Bartoli, *Basic Conversational Italian,* $13.00

SPANISH Instructor to be announced L047
Sec. 1 Thursday, 7-9 p.m., 10 weeks, begins March 1, $45.

For those who wish to understand, read and speak Spanish in a Spanish-speaking country or community. Spoken Spanish, with phrases and expressions. Some grammar.

SWEDISH FOR THE TRAVELER Margareta Tristan L048
Sec. 1 Monday, 6:30-8:30 p.m., 10 weeks, begins February 26, $46.

Basic spoken Swedish for travelers to Sweden. Born and educated in Sweden, the instructor provides popular vocabulary with a minimum of grammar. Make friends and enjoy the smorgasbord with a Svensk flair. Learn to find you way around a 100-year old town, and select a train to a small village. Those with some knowledge of Swedish are also welcome.

SWAHILI Michael Kirkorir Koech L049
Sec. 1 Monday, 7:30-9:30 p.m., 10 weeks, begins February 26, $46.

Conversational Swahili with basic grammar instruction. Some discussion of historical, cultural and political background issues relevant to Swahili-speaking peoples incorporated into the lectures; no previous knowledge of Swahili necessary. Required text: Zawawi, *Kiswahili Kwa Kitendo,* $12.50 available from the instructor at the first meeting.

HEALTH & FITNESS

AEROBIC DANCE Donna Potter-Astion L050
Sec. 1 Monday and Wednesday, 6-7 p.m., 10 weeks, begins February 26, $45.

A fitness approach to dance combining the aerobic conditioning benefits of jogging with the flexibility and control of dance. Combines the best of both worlds. A sincere commitment to weight control, fitness and good health emphasized.

HATHA YOGA: BEGINNING Adele Mack L051
Sec. 1 Wednesday, 8-9:30 p.m., 10 weeks, begins February 28, $36.

Based on the premise that good health is discipline. Explores Hatha Yoga asanas and pranayama. Leads to relaxation at will, greater powers of concentration; includes a review of proper nutrition.

HATHA YOGA: INTERMEDIATE Adele Mack L052
Sec. 1 Wednesday, 6-7:30 p.m., 10 weeks, begins February 28, $36.

For those with some previous experience with Yoga. Emphasis on the physiology of asanas and pranayama and their therapeutic value. Combination of stretches and breathing exercises with relaxation techniques to release tension and increase energy.

WOMEN'S HEALTH CARE Ellen Miller-Mack L053
Sec. 1 Thursday, 7:30-9:30 p.m., 8 weeks, begins March 1, $38.

Focus on the structure and function of the reproductive system and its demystification; as well as the management of common gynecological problems, including venereal disease and vaginitis. Topics include: how to get the most out of your health care provider, overcoming such obstacles within the system as inaccessibility of medical information, sexism and heterosexism, contraception, pregnancy, abortion, female sexual response and menopause. The aim is to accept women's unique sexuality and to become more comfortable with one's body.

WOMEN'S SELF DEFENSE Sharon Anderson L054
Sec. 1 Thursday, 7-9 p.m., 10 weeks, begins February 27, $46.

Physical workouts including conditioning exercises, strikes, blocks, releases and kicks. Topics include: verbal harassment, fears of hurting and myths concerning violence against women.

LANGUAGE & WRITING

REVIEW YOUR ENGLISH GRAMMAR AND PUNCTUATION Instructor to be Announced L055
Sec. 1 Thursday, 7-9 p.m., 5 weeks, begins March 1, $26.

Review of English needed to handle daily business and personal writing. Contemporary usage, sentence structure and punctuation emphasized. Especially helpful to those who write business letters and reports or handle correspondence for clubs and organizations.

***SIGN LANGUAGE AND FINGER SPELLING: BEGINNING Stanley Patrie L056**
Sec. 1 Tuesday, 7-9 p.m., 10 weeks, begins February 26, $46.

Teaches manual communication as used by most deaf people in this country. Includes brief history of the language of signs, background information on deafness and effects on those born deaf or who have lost their hearing later in life. Conversation with totally deaf people, including the instructor. Required reading; Lottie Riekehot, *The Joy of Signing,* $10.95, available from the instructor at the first meeting. 2 CEUs.

***SIGN LANGUAGE AND FINGER SPELLING: ADVANCED Stanley Patrie L057**
Sec. 1 Monday, 7-9 p.m., 10 weeks, begins February 27, $45.

American Sign Language (AMESLAN) uses the same signs as Signed English (which is taught to beginners), but the order in

which these words are put together is very different. Syntax and tense are largely ignored and sentences greatly shortened. Required reading: Fant, *AMESLAN-An Introduction,* $4.95, available from the instructor at the first meeting. 2 CEUs.

WRITING FOR SELF-DISCOVERY Brooks Robards L058
Sec. 1 Wednesday, 7-10 p.m., 10 weeks, begins February 28, $65.

Use of writing for self-expression and self-discovery. Includes keeping journals and trying different modes of writing, such as short stories, autobiography, poetry, drama, songs and letters. Writing interests of class determine the areas covered; emphasis on sharing. Culminates with publication of a collection of the group's work.

**These workshops have been approved for two CEUs which will be awarded to all participants attending all sessions (20 required contact hours): the CEU is designed for in-service professionals and non-professionals who maintain a record of their participation in approved non-credit continuing education programs. For a more complete description of CEUs, see Continuing Education Units under Program Alternatives.*

MUSIC

BLUEGRASS BANJO: BASIC Talmage Crabb L059
Sec. 1 Tuesday, 6:30-8:30 p.m., 10 weeks, begins February 27, $46.

Banjo care, tuning, finger rolls and exercises. Study of Bluegrass styles of Earl Scruggs and others through more modern melodic approaches to the instrument. Students need a workable five-string banjo.

FIDDLE: ADVANCED BASIC Tom Sample L060
Sec. 1 Tuesday, 6:30-8 p.m., 10 weeks, begins February 27, $50.

For beginners with some experience playing the fiddle (or other stringed instrument). Includes tunes from New England, Irish, French Canadian, and southern United States traditions. Students should have access to a fiddle and be able to read music.

FIDDLE: BASIC Tom Sample L061
Sec. 1 Monday, 6:30-8 p.m., 10 weeks, begins February 26, $50.

For those with no previous experience with the fiddle. Bowing technique and rhythm emphasized. Includes tunes from New England, Irish, French Canadian and southern United States traditions. Students should have access to a fiddle and be able to read music.

FOLK GUITAR FINGER STYLE: BASIC Fran Ferry L062

Sec. 1 Monday, 7-9 p.m., 10 weeks, begins February 26, $47.

Guitar care, tuning, picking, technique, note reading, basic chording, basic theory, tablature, back-up picking, capo, picking styles and listening. Songs used and taught are traditional folk.

HARMONICA: BASIC Instructor to be announced. L063
Sec. 1 Thursday, 7-8:30 p.m., 10 weeks, begins March 1, $35.

Learn how to play one of the most popular portable instruments. Play some simple traditional, folk and blues songs. The basic techniques include: bending, rolling, tongue-blocking, vibrato and wah-wah. Learn about playing one harmonica in four different keys (positions). Individual attention. No previous musical training necessary, just a desire to learn. Bring a 10-hole Hohner Marine Band Key of C harmonica to the first meeting

JAZZ ROCK GUITAR: BASIC Instructor to be announced L064
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $47.

Includes guitar care, tuning, plectrum technique, note reading, basic chords, position scales, 12-bar progressions, riff-writing, improvising, rhythm chords, lead chords, arrangement and listening Songs from standard and popular repertoire. Access to guitar necessary.

MUSICAL COMEDY John Shout L065
Sec. 1 Tuesday, 7-9 p.m., 10 weeks, begins February 27, $45.

An informal treatment of some of the songs, lyrics, plots and performers that have made the American musical comedy among the most successful modes of entertainment of this century. Time devoted to discussing particular shows, listening to recordings, covering social trends reflected by the musicals and talking about what works and what doesn't on a musical stage. Some attention paid to how a musical comedy is created and produced. Major figures considered are Jerome Kern, Irving Berlin, Cole Porter, Brecht and Weil, the Gershwins, Rodgers, Hart and Hammerstein, Steven Sondheim, Leonard Bernstein.

PERSONAL GROWTH

DREAMS AND DREAM INTERPRETATION Steven M. Bengis L067
Sec. 1 Tuesday, 7:30-9:30 p.m., 10 weeks, begins February 27, $45.

Introduces the basics of dream interpretation with specific emphasis on the work of Carl Gustav Jung. In addition to exploring the theoretical approach of Jung, we will use specific dreams from case studies and provide space for participants to work on their own dream material (strictly voluntary). Students are asked to maintain a dream journal. Specific readings which correspond to weekly discussion. No physiological background required.

GROWTH AND DEVELOPMENT OF PARENTS Sandra Whitcomb L068
Sec. 1 Tuesday, 7:30-9:30 p.m., 8 weeks, begins February 27, $38.

Discussion group for parents to share their feelings, strengths and weaknesses about parenting. Since parenting is a role that many of us approach with little prior training, planning or education, we frequently feel overwhelmed by the responsibilities and expectations of being a "good" parent. Examines how we become parents, family adjustments, role expectations, shared parenting vs. traditional roles and tries to develop a basic understanding of who we are as parents and how that fits into our individual needs and family relationships.

PEER COUNSELING Mekael Askin Taylor L069
Sec. 1 Monday, 6-8:30 p.m., 10 weeks, begins February 26, $58.

Peer counseling is a nonjudgmental, self-directed and self-affirming type of emotional release counseling. It is two-way counseling in which participants learn to function as both counselor and client. Requires a commitment of at least one session per week outside of class in which to practice techniques learned in class. An intensive program for people who are willing to spend the time and energy needed to bring about changes in themselves. Not meant for people undergoing severe crisis. Participants must be able to assume responsibility for both themselves and others.

SELF-DEFEAT AND SELF-ACTUALIZATION John Barbaro L070
Sec. 1 Monday, 7-9:30 p.m., 10 weeks, begins February 26, $56

Self-defeating behaviors are habits and personal patterns of living that get in the way. Systematically identifies those behaviors and their personal meaning. Underlying motivations and workable alternatives emphasized. Recommended reading: M. Schiffman, *Gestalt Self-Therapy;* S.J. Warner, *Self-Realization and Self-Defeat;* A.L. Lakein, *How to Get Control of Time and Your Life.*

PHOTOGRAPHY

BASIC PHOTOGRAPHY Richard Barrell L071
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $46, in Amherst.
Sec. II Thursday, 7-9 p.m., 10 weeks, begins March 1, $46, in Palmer.

Use of cameras, lenses, filters, light meters and other equipment; darkroom procedures and equipment. Discussions of slides, 16mm films, books, prints and work of major photographers. Demonstrations and handouts. Relaxed atmosphere; instructor works individually with students on projects. Individual darkroom work not included. Recommended reading: Upton and Upton, *Photography*, $13. (Expenses: $5-$10.)

THE DARKROOM PHOTOGRAPHER: BASIC SKILLS Carol Reck L072
Sec. 1 Monday, 1:30-4 p.m., 10 weeks, begins February 26, $85.
Sec. 11 Monday, 7:30-10 p.m., 10 weeks, begins February 26, $85.
Sec. 111 Tuesday, 7:30-10 p.m., 10 weeks, begins February 27, $85.

See your own images appear in the developer; enjoy leaning how to make high-quality prints from your negatives. Clear, step-by-step demonstrations of film developing, contact sheets, enlarging and mounting of finished products followed by actual darkroom practice in each session. Includes slide-viewing and discussion of images and students' technical problems in shooting, developing and printing. Each student produces quality mounted prints. For beginners. Size limit—five. Access to 35 mm camera required. All chemicals and paper supplied. Bring one roll of exposed black and white film to first meeting for developing.

THE DARKROOM PHOTOGRAPHER: INTERMEDIATE SKILLS Carol Reck L073
Sec. 1 Tuesday, 1:30-3:30 p.m., 10 weeks, begins February 27, $85.
Sec. 11 Wednesday, 7:30-9:30 p.m. 10 weeks, begins February 28, $85.

Sharpening of photographic vision and improvement of the quality of prints. Understanding imagery and applying the technical tools of good print-making. Combines discussion of photographs and actual darkroom practice in each session. Students work on their own negatives and prints, handle contrast, tonality, shape, space, scale, select printing papers and use toners to bring out expressive qualities in print. Varieties of presentation of final prints. Size limit—five. For students with basic darkroom skills. Access to adjustable 35 mm camera required. All required chemicals and paper supplied.

PLANTS

DESIGNING YOUR OWN SOLAR GREENHOUSE Peter Kitchell L074
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $47.

Design a solar greenhouse to heat itself and help heat a home. Based on recent research and examples of solar greenhouses, with or without manufactured components, owner built or contracted. Includes site considerations for both freestanding and attached greenhouses, selecting or designing supplementary mechanical and greenhouse equipment, comparison of various material for performance, durability and cost. Review of cost designs.

HOME DECORATING AND LANDSCAPING WITH PLANTS Valerie A. Locher L075
Sec. 1 Tuesday, 7-9 p.m., 10 weeks, begins February 27, $46.

The use of horticultural materials in home decorating schemes. Basic principles of interior care, disease and insect control, and problems concerning the placement of plants within an artificial environment. Later sessions center on outdoor plantings and gardening, with emphasis placed on companion planting and organic methods of disease and pest control.

TROPICAL PLANT FAMILIES John Tristan L076
Sec. 1 Tuesday, 6:30-9:30 p.m., 10 weeks, begins February 27, $65.

A systematic review of important plant families for indoor and greenhouse cultivation. Offers acquaintance with many exotics. Cultural techniques, propagation and general plant care for selected groups, including gesneriads, bromeliads, begonias, orchids, cacti and succulents, foliage plants and tropical herbs. Some discussion of plant geography and the adaptation of plants for indoor use. Responsive to the specific needs of the class. Labs in a greenhouse setting. (Expenses: $5.)

RED CROSS TRAINING WORKSHOPS

The workshops listed below are offered in cooperation with the American Red Cross. All instructors have been trained & certified by the Red Cross and are teaching on a volunteer basis. Workshops are free of charge to all participants.

ADVANCED FIRST AID Instructor to be announced L077
Sec. 1 Monday and Wednesday, 6:30-9:30 p.m., 10 weeks, begins February 26, no charge.

For those who desire in-depth knowledge of first aid techniques and emergency care. Different types of emergencies: burns, wounds, drowning, poisoning, childbirth. Taught by a certified Red Cross instructor. (Expenses: $4, to cover costs of materials, supplies, etc. necessary to conduct the program, payable at first meeting.)

CPR/CARDIOPULMONARY RESUSCITATION Esther Wallace L078
Sec. 1 Tuesday and Thursday, 4:30-6:30 p.m., 2 weeks, begins February 27, no charge.
Sec. II Tuesday and Thursday, 4:30-6:30 p.m., 2 weeks, begins March 13, no charge.

The technique of combining mouth to mouth resuscitation and external heart compression to restore breathing and heartbeat in cardiac arrest victims. Lecture, demonstration and mannequin practice in the techniques of administering CPR. Taught by a certified Red Cross instructor. All instructors have been trained and certified by the American Red Cross and are teaching CPR on a volunteer basis. Required reading: *Cardiopulmonary Resuscitation, American Red Cross First Aid for Foreign Body Obstruction of the Airway*, ARC. Books are available at the first meeting. (Expenses: $2 to cover costs of materials, supplies, etc. necessary to conduct the program, payable at first meeting.)

STANDARD FIRST AID Helen Zatyrka L079
Sec. 1 Thursday, 7-9:30 p.m., 8 weeks, begins March 1, no charge.

Prepares the general public to deal with situations when emergency care is required but medical care is not excessivley delayed. Incorporates personal safety and accident prevention information. Taught by a certified Red Cross instructor. (Expenses: $3.50, to cover costs of materials, supplies, etc. necessary to conduct the program, payable at the first meeting.)

TEST PREPARATION

COLLEGE LEVEL EXAMINATION PROGRAM REVIEW (CLEP) instructor to be announced L080
Sec. 1 Monday, Tuesday, Wednesday and Thursday, 7-9 p.m., 2 weeks, begins April 2, and Saturday, April 14, 9 a.m.-1 p.m., $40.

Prepares students for the College Level Examination Program in English composition, humanities, social science, natural science and mathematics. Guest speakers cover each general area. Students take sample tests at the beginning and again at the end of the workshop to identify areas needing special attention. Participants will increase their test-taking skills and should be able to earn a maximum number of credits by examination. Students will become familiar with the format used in CLEP tests.

GRADUATE MANAGEMENT ADMISSION TEST REVIEW (GMAT) Instructor to be announced L081
Sec. 1 Monday, Tuesday, Wednesday and Thursday, 7-9 p.m., 2 weeks, begins February 26, and Saturday, March 10, 9 a.m.-1 p.m., $40.

Designed to assist candidates in preparing for the Graduate Management Admission Test. Covers specific examination content areas, assessment of individual student's particular needs and psychological factors of exam taking. Topics: strategies for test taking, approaches to solving specific problems, review of mathematics, graphs and data interpretation, reading comprehension, verbal and opposites, business reasoning.

LAW SCHOOL ADMISSIONS TEST (LSAT) PREPARATION WORKSHOP Caryn Markson, L082
Sec. 1 Monday, Tuesday, Wednesday and Thursday, 7-9 p.m., two weeks, begins April 2, and Saturday, April 14, 9 a.m.-1 p.m., $40.

Prepares students for the LSAT exam administered on April 21, 1979. Includes: practical judgment (one session) and logic (two sessions), taught by Robert Welsh; cases and principles (one session), taught by Steven Arons; writing ability (one session), taught by Marcia Curtis; data interpretation (one session), quantative comparison (one session), math (one session), instructor to be announced. Saturday session includes administration of a practice exam under timed conditions to simulate actual examination procedures. Required reading: *Law School Admission Test,* Monarch Press, $5.95, available from instructor at first meeting.

. . .AND MORE

BARTENDING Peter Connelly L083
Sec. 1 Wednesday, 7-8 p.m., 10 weeks, begins February 26, $46.

Step-by-step procedures in the art of mixology. Instructions for 100 alcoholic drinks, demonstrations for mixing drinks, the bartenders tools, wine service, history and differences of beers, and the production of spirits.

BICYCLING Bradford Knipes L084
Sec. 1 Wednesday, 7-8 p.m., 10 weeks, begins February 28, $25.

All aspects of bicycling, with emphasis according to students' interests. Includes clothing and equipment, construction, maintenance and repair, riding techniques, commuting, touring and racing. Lecture, discussion, demonstration and exhibition of rare bicycles.

BOOKKEEPING: BASIC Kevin Aiken L085
Sec. 1 Thursday, 7-9 p.m., 10 weeks, begins March 1, $46.

Introduction to bookkeeping. Includes journal entries, cash disbursements, journals and statements. Payroll taxes and deductions: cash basis and accural basis. Areas of interest to students covered as time permits.

CHAINSAW USE, MAINTENANCE AND SAFETY FOR BEGINNERS Robert Mack and Charles Thompson L086
Sec. 1 Saturday, 9 a.m.-2 p.m., April 7, $19.

For those with little or no experience with chainsaws who would like to process their own firewood. Use of gasoline chainsaw for felling, limbing and bucking trees. Sharpening, routine maintenance and safety considerations emphasized. Class meets in local woodlot. Limited opportunity for practice for those with their own saws. Also useful for those considering purchasing a chainsaw.

CURRENT ISSUES IN PSYCHOLOGY Julie Redstone L087
Sec. 1 Monday, 8-9:30 p.m., 7 weeks, begins March 5, $26.

Exploration of some of the more controversial ideas facing those interested in mental health today. Questions such as: Is homosexuality "normal"?, What is the real value or harm of "self help" programs?, Are differences between masculinity and femininity real or culturally determined?, Why do marriages fail?, will be discussed from various points of view.

CREATIVE DRAMA Susan Fleischman and Stuart Lerner L088
Sec. 1 Wednesday, 6-8 p.m., 10 weeks, begins February 28, $46.

Experiences in imagination and creative dramatics. Structured exercises, improvisations and prepared pieces. Developing new ways of seeing, feeling and understanding through work with poems, myths, stories and folk tales. Adapts to the development of each student; beginners and those with theater or movement background are welcome. Individually and as a group, students explore the use of speech, sound, movement, music and pantomime as elements for dramatic expression.

FORESTRY PRINCIPLES FOR WOODLOT OWNERS Robert Mack and Charles Thompson L089
Sec. 1 Tuesday, 7:30-9:30 p.m., 4 weeks, begins March 27, and Saturday, 9 a.m.-1 p.m., 3 weeks, begins March 31, $48.

Examines fundamentals of forestry to help studnts make sound decisions in the management and use of their woodlot. Topics include: identification of tree species, woodland ecology, woodlot improvement activities, forest measurement techniques, management planning and economic considerations. Saturday field sessions examine various forest situations. Group develops prescriptions for improvement of actual sample areas.

GO HIRE YOURSELF AN EMPLOYER William D. McCarty and Joseph Simanski L090
Sec. 1 Tuesday, 6:30-9:30 p.m., March 15, $11.

Practical workshop to show you how to get the job you want. Learn how to sell yourself and avoid pitfalls. Emphasis on oral communication—both personal and by telephone, confidence-building and interview techniques. Explanation of Standard Industrial Classification codes. Individual resumes and company selection. Locations of your choice studied.

INVESTMENT PLANNING Janet C. Barbour L091
Sec. 1 Wednesday, 7-9 p.m., 5 weeks, begins March 7, $25.

Covers the "nuts and bolts" of investment planning, examining various investment vehicles in context of the individual financial plan. Discussed are: stocks, bonds, mutual funds, options, tax shelters, retirement plans and life insurance.

LAW FOR NON-LAWYERS Eric Walgren L092
Sec. 1 Wednesday, 7-9 p.m., 10 weeks, begins February 28, $48.

Covers the nature of the legal process through discussion of civil and criminal law, the Constitution in myth and reality, the various powers of government and the court procedures. One lab in a law library.

READING IMPROVEMENT WORKSHOP Instructor to be announced L093
Sec. 1 Wednesday, 7-9 p.m., 5 weeks, begins February 28, $26.

Emphasis on improved reading comprehension. Should increase reading speed 50% or more. Improves efficiency through analysis of the readings and reading process. Skills can be applied equally well to improving effectiveness and notetaking skills.

TENNIS: BEGINNING Bill Yu L094
Sec. 1 Monday and Wednesday, 5:30-6:30 p.m., 4 weeks, begins April 23, $25.

Fundamentals of stroke dynamics, balance, coordination and rhythm. Includes forehand, backhand, serve, rules of the game, scoring and beginner's strategy. Open to anyone with a desire to learn and the motivation to practice. Bring a racket and a can of balls; wear sneakers.

TENNIS: INTERMEDIATE Bill Yu L095

Sec. 1 Tuesday and Thursday, 5:30-6:30 p.m., 4 weeks, begins April 17, $25.

For those students who can already hit groundstrokes with some consistency. Rudiments of forehand and backhand, and techniques to achieve more powerful and accurate strokes. Introduces correct execution in the use of the serve and the volley. Explores match play, and how to buy tennis equipment. Bring a racket and a can of balls; wear sneakers.

TRADITIONAL FOOD FOR THE NEW AGE Paula Gallagher L096

Sec. 1 Wednesday, 7-10 p.m., 8 weeks, begins February 28, $55.

Recapture the art of cooking and eating principal foods. Experience the centering qualities of corn, oats, rye, barley, rice, wheat, millet and buckwheat. Savor the richness of sauteed, baked, steamed and tempura land and sea vegetables. Develop a taste for local wild vegetables collected and prepared during the workshop. Learn to create high quality protein by tastefully combining grains, beans, seeds and nuts. Discover alternatives to meat and dairy products by learning to make and cook tofu and seitan in a variety of ways. Techniques for making desserts using fruits, nuts, grain malt and syrups. Practical areas explored: how to make the transition to a more health-giving diet, how to raise your family's consciousness concerning food and health, how to lose and maintain weight, how to use low technology tools (hand mills, grinders). (Expenses: $5.)

SPACE, 1979 Jim Loudon L097

Sec. 1 Saturday and Sunday, 9 a.m.-12 noon and 2 p.m.-5 p.m., April 28 and 29, $50.

The Pioneer-Venus and Voyager-Jupiter/Saturn missions, now underway, are revolutionizing our knowledge of the worlds around us and hence our own. The Space Shuttle, about to fly, will cut the cost of getting into space by 90% and enable us to do things we can't do now at any price,such as orbit non-astronaut passengers. The Shuttle may lead to the colonization of space, which shows promise of alleviating many of humanity's material (as opposed to psychological) problems. A detailed, but completely non-technical, presentation of the latest discoveries and prospects in these four areas of spaceflight. Prerequisites: None. **Special registration deadline for this workshop is March 30, 1979.**

Program Alternatives

The following program alternatives to traditional higher education provide a chance to pursue an interest or acquire a degree at convenient times and locations for adults already committed to active involvement in families, careers, or communities. Part-time students are recognized as valuable assets to the University community, and every effort is made by the Division of Continuing Education to make the resources of the University accessible to them.

Response Programming

Any organization or group of individuals may make a request for a specific credit course or Credit-Free Workshop to be offered through the Division of Continuing Education. Courses and workshops can be arranged to suit most schedules and may be offered in any suitable location as long as there is a sufficient enrollment. Response credit courses and Credit-Free Workshops can be requested by contacting the respective administrators of the programs at (413)549-4970.

The Continuing Education Unit (CEU)

The CEU is designed for in-service professionals and non-professionals who want to maintain a record of their participation in approved non-credit continuing education programs. It is not equivalent to academic credit, but it is applicable to appropriate learning experiences of adults at all levels from post-secondary to post-doctorate for all classes of adult learners, whether vocational, technical, professional, managerial, or adults bent on personal improvement; and in all formats of teaching and learning. CEUs are generally transferable from one institution to another.

The Division of Continuing Education, University of Massachusetts/Amherst, will award a specified number of Continuing Education Units to each individual who successfully completes a workshop approved for the awarding of CEUs. Each CEU represents ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. The number of CEUs per workshop is determined by the total number of contact hours. Awarding only some part of the CEUs offered in a workshop is not an option, and to receive CEUs each workshop participant must attend the total number of contact hours required and/or meet the established evaluative criteria.

Students may request an official cumulative transcript of CEUs at any time. Send a written request, indicating the name and address of the recipient of the transcript to: CEU Transcript Request, Division of Continuing Education, Hasbrouck, University of Massachusetts, Amherst MA 01003. A fee of $2.50 is charged after the first request.

Arts Extension Service

The Arts Extension Service is a community development program which works to meet the needs of continuing education in the arts. The first objective of AES is to help develop effective and self-sufficient community arts organizations. Second, AES responds to the educational, marketing and informational needs of individual artists, craftspeople and arts interested people. Third, AES provides contact and involvement in the arts for people of all ages in the communities of western New England.

Activities include: consulting services in technical and management problems; workshops in community arts management and group dynamics; projects servicing the arts interests and needs of older people, inner city people, rural communities and other special interest groups; maintenance of the Arts Directory, a listing of regional artists; a series of arts seminars and conferences; a booking referral service for artists; Communities to Campus, a program aimed at making UMass/Amherst campus events more available to communities and "The New England Artists Festival and Showcase," which brings the art and performance talents of western Massachusetts together for a major two-day celebration.

AES also serves as an arts reference center, providing information about and assistance with arts activities and services in western New England.

The Arts Extension Service publishes:

The Arts Directory
Arts Festivals; A Work Kit
The Logo Handbook
The AES News

For information contact Arts Extension Service, Hasbrouck, University of Massachusetts, Amherst MA 01003, (413)549 4970.

Citizen Involvement Training Project

The Citizen Involvement Training Project is a community-oriented program designed to help citizens and citizen groups have more impact. CITP is a three-year program which began in December, 1976. Its services include workshops, consultation sessions, the development of written training materials and a citizen involvement resource library.

CITP works with any citizen group, from mandated citizen boards and councils to grass-roots organizations. Among those organizations requesting CITP services in the past are: Council for Children, Massachusetts Tenants Rights Union, Multi-Social Service Center. Spanish-American Union, Grey Panthers and ACTION.

Citizen groups may obtain CITP services by filling out an Applicant Packet, which will help staff members diagnose problems

and issues during a two-hour consultation session. Based on this consultation, CITP will arrange and design tailor-made workshops or future consultation sessions.

CITP is funded by a major grant from the W.K. Kellogg foundation, and grants from the Blanchard and Polariod Foundations. It is sponsored by the Division of Continuing Education, in conjunction with the Cooperative Extension Service.

To request service or additional information contact Dave Magnani, Project Coordinator, Hasbrouck, (413) 549-4970.

Great Decisions

Great Decisions, a national program with world-wide concerns, began in 1954. Nationally, the program is sponsored by the Foreign Policy Association, a non-profit, non-partisan organization which, since 1918, has been stimulating voluntary and constructive participation in world affairs. Locally, Great Decisions is facilitated through the State Coordinator's office for Great Decisions at the Division of Continuing Education.

Great Decisions participants usually meet in informal community groups of between five and fifteen members, and examine eight crucial issues in current U.S. foreign policy. They assess background information, evaluate diverse opinions and communicate their own informed opinions about the directions of governmental action to the State Department and the Congress.

For further information about Great Decisions, please contct the Great Decisions Office, Division of Continuing Education, Hasbrouck, University of Massachusetts, Amherst MA 01003, telephone (413) 549-4970.

Liberal Studies

The Adult Liberal Studies Program offers a unique opportunity for adults to take courses designed specifically for their interest and stimulation. The courses are taught by some of the area's most able educators. All carry University credit and may be taken as part of a Bachelor of General Studies program. Students may also take individual courses for enrichment, whether or not they intend to apply the credits toward a formal course of studies. A certificate of Liberal Studies will be awarded at the completion of thirty hours of credit.

This program is not intended to train experts in a narrow specialization but to provide opportunities for those who seek broad, interdisciplinary paths to knowledge and understanding. Its objectives are to expand awareness into the past, the future and beyond the limits of the contemporary West; increase students' ability to discriminate, analyze and articulate and to engender a sense of aesthetic appreciation.

Cjourses are taught by outstanding area educators selected for their teaching ability, their command of their subject and their interest in adult education. The program offers courses at various locations and at times convenient for adults. Specific information may be obtained by contacting Frederick Robinson at (413) 549-4970.

Please see Bachelor of General Studies, page 21.

Library Science

The Division of Continuing Education, by arrangement with the University of Rhode Island, offers Library Science courses each semester which may be applied to a University of Rhode Island Master's Degree in Library Science.

The MSLS degree requires 36 hours of credit, including six hours of electives. Half of the requirements for the degree may be completed through continuing education before the participant continues in residence at the University of Rhode Island's Kingston campus. In order to be eligible for the degree program, students must possess a Bachelor's Degree from an accredited college or university with an average of B or better. It is not necessary to be enrolled in a full degree program to receive credit for the courses, although a Bachelor's degree is still required. Students who wish to be admitted to the degree program should apply prior to obtaining 12 credits through Evening College.

Persons interested in further information about application procedures for the full degree program should contact the Dean's Office, Graduate Library School, University of Rhode Island, 74 Lower College Road, Kingston RI 02881, telephone (401) 792-2947. Registration for individual Library Science courses is done through he Division of Continuing Education.

Spring 1979 Library Science Courses*

Basic Reference LSC 504

Practical experience in the use of basic reference materials, with readings and discussion of the philosophy and administrative aspects of reference work. University of Rhode Island credit: 3. Course fee: $150.
Instructor: Betsy Brenneman

Intellectual Freedom and Censorship LSC 513

Historical development and current status of the concept of intellectual freedom and the restraints that past and present societies have imposed on it. Special attention given the librarian's role in defense of intellectual freedom. University of Rhode Island credit: 3. Course fee: $150.
Instructor: Jonathan Tryon

*All Library Science courses are listed in the schedule of courses under CONTED. For registration purposes, use the schedule of courses for course names and registration numbers.

The Graduate Library School of the University of Rhode Island reports that the GLS Self-Study has been sent to the American Library Association. The school was visited by the Committee on Accreditation in September, 1978, and has high hopes for a positive evaluation of the work done in response to the committee's 1976 recommendations. Re-accreditation as a result of that visit will mean that all students attending the Graduate Library School on the Kingston Campus and the regional centers between June, 1976, and January 7, 1979, will be covered by the accreditation umbrella.

The GLS consultant to the dean in February that "the School has made . . . a remarkable response to the recommendations (and) . . . substantial progress . . . in virtually every area." Copies of the self-study and the consultant's report are available for short-period loans from the Dean's Office, Graduate Library School, University of Rhode Island.

Management Development

The School of Business Administration, in collaboration with the Division of Continuing Education, conducts seminars, workshops, courses and other special format programs on various aspects of management education. Many topics are offered under the general areas of Management, Personnel Practices, Labor Relations and Training Technology. Outstanding programs are given throughout the year to managers from business, industry and non-profit organizations. Held on and off campus, programs are tailored to meet the client's needs, with special emphasis given to follow-up procedures. Inquiries should be addressed to: Carol B. MacKnight, Management Development Programs, Continuing Education, University of Massachusetts, Amherst MA 01003. Telephone: (413) 549-4970.

Day long seminars projected for Spring 1979 include:

Fundamentals of Management and Organizational Behavior for Women Managers
Accounting for the Non-Accountant
Professional Selling Techniques
Private Trucking OperationJ
The Art of Successful Negotiation
Developingountant
Professional Selling Techniques
Private Trucking Operations
The Art of Successful Negotiation
Developing and Enhancing Interviewing Skills
Preventing and Handling Employee Problems
Electronic Data Processing and Auditing Techniques
Computers for Small Businesses
Personnel Management for the 1980's
New Product Development and Evaluation
Time and Territory Management for Sales Representatives

Short Courses-Paul Farmer

How to Read Financial Information
Four Tuesdays, 7:00-8:30 p.m., beginning February 13
Option Workshop
Four Wednesdays, 7:00-8:30 p.m., beginning February 14
Investing for Income
Six Tuesdays, 7:00-8:30, beginning March 21
Investing for Growth
Six Wednesdays, 7:30-8:30 p.m. beginning March 22

Real Estate Certificate Program

The Real Estate Certificate Program is designed to provide real estate personnel with the opportunity for personal growth and career development. It is structured to meet the needs of the working professional as well as to prepare the student for a career in real estate. Property owners, investors, attorneys, lenders, builders, managers and others will also find seminars offered through this program to be of great interest.

The Real Estate Program offers the widest selection of seminars of any university in New England. The program is open to the general public. Participants may enroll in a single class or elect to pursue a full program thus qualifying for the Certificate in Real Estate Studies.

Upon approval, Continuing Education Units (CEUs) will be awarded for each course successfully completed. To be eligible to receive CEUs, 80 percent attendance of the class sessions is required in addition to meeting the requirements as defined by the instructor.

The CEU is a nationally-recognized, standard unit earned by participation in substantive non-credit learning experiences. One CEU represents 10 contact-hours of participation; thus a 30-hour seminar would equal three CEUs. The Division maintains a permanent record of all CEUs awarded. Individual transcripts are available for job applications, personnel files and similar uses by writing to: CEU Transcript Request, Division of Continuing Education, 113 Hasbrouck, University of Massachusetts, Amherst MA 01003. A fee of $2.50 is charged after the first request.

To register by mail complete the Credit-Free Workshop registration form on page 25. Place the numbers listed next to Real Estate seminar titles in the space designated for workshop numbers. Be sure to include the $5 registration fee required of Real Estate Certificate Program participants. Mail registrations must be received no later than February 5. Walk-in registrations will be accepted by the Continuing Education Records Office through the first day of classes. If desired, students may register for Summer seminars this Spring.

The program will offer seminars off campus whenever the demand warrants doing so. In addition, special seminars and workshops will be offered during the year. For inquiries or suggestions, contact Carol B. MacKnight, Real Estate Program, Division of Continuing Education, University of Massachusetts, Amherst, MA 01003, (413) 549-4970.

HEALTH SERVICES AND INSURANCE

Students registering for Real Estate Workshops which have been approved for a total of 6 CEUs are eligible to purchase the Health Services and Health Insurance available to University of Massachusetts students. For more information, contact the Continuing Education Records and Registration Office, 113 Hasbrouck, (413) 549-4970.

VETERAN'S REGISTRATION PROCEDURE

All veterans must complete a form, available from the Office of Veterans Affair, 236 Whitmore, indicating their eligibility status. For further information, contact Arthur Hilson at 545-1347 or David Bousquet at 545-1346.

Veterans should complete registration and pay their fees, and then request the Veterans Administration to forward the necessary papers for refunds.

Real Estate Program

Modern Real Estate Practices A100
February 12-May 21, 12, Mondays, 7-9:30 p.m., $95 3 CEUs

Introduction to the real estate profession. Topics include: physical, legal and economic characteristics of real estate, general business law, real estate contracts, finance, brokerage administration, land development and appraising techniques. Prepares students for the Real Estate Salesperson's Examination.

Foreclosure, Bankruptcy Problems and Creditor's Rights A107
February 12-May 21, 12 Mondays, 7-9:30 p.m. $135 3 CEUs

Examines the legal and practical problems of enforcing secured interest in real estate. Includes deeds in lieu of foreclosure, receiverships, mortgages in possession, methods of working out defaulted loans, preserving rights against guarantors, and title companies and related bankruptcy problems.

Appraising Residential Properties A103
February 12-May 21, 2 Mondays, 7-9:30 p.m., $125 3 CEUs

Introduction to residential appraisal for the beginning appraiser, real estate broker, lender, builder and assessor. Examines some basic theories, principles of real property evaluation, economic factors affecting their value, appraisal process and the appraisal report. Topics include: analyses of location, neighborhood and site, classic appraisal approaches, building evaluation, depreciation, cost approach to value and market approach to value. Prerequisite: A100 (Modern Real Estate Practice), or consent of instructor.

Managing and Selling of Distressed Properties C121
February 13-April 10, 8 Tuesdays, 7-9:30 p.m., $130 2 CEUs

Directed toward property managers, real estate officers of lending institutions, mortgage bankers, house officers, property owners and entrepreneurs concerned with unprofitable or distressed real estate. How to analyze a distressed property, evaluate its operation, establish priorities, determine the property's economic potential and develop a comprehensive workout plan. Case studies and exercises used for discussion of the causes of and solutions for troubled properties.

Real Estate Law A101
February 14-May 9, 12 Wednesdays, 7-9:30 p.m., $95, 3 CEUs

Provides basic knowledge of real property law and examines legal difficulties that can arise in real estate transactions. Case studies and practical applications of legal principles enhance problem solving skills. Topics include: sources of real estate law, nature and classes of property, acquisitions or transfer of property, methods of ownership, incidents of ownership, contracts, mortgages and trust deeds, liens, taxes and easements, covenants, conditions and restrictions, escrows, leases and landlord-tenant relationships, title examination and Consumer Protection Act. Recommended as preparation for the Broker's License Examination.

Real Estate Tax Shelter
February 13-May 8, 12 Tuesday, 7-9:30 p.m. $130

Outlines the general importance of tax considerations in real estate, with special attention given to tax benefits of real estate depreciation and favorable capital gains. Taxation in regard to the forms of ownership and tax-free exchanges of businesses or investment real estate is discussed. Practical and technical aspects of the exchange are presented through exchange examples and case studies. People interested in increasing return on their investments will find this course useful. Prerequisite.

Listing and Selling Real Estate
February 13-March 27, 6 Tuesdays, 7-9:30 p.m., $90, 1.2 CEUs

For those who want to improve their selling performance as well as those who are newly-licensed salespersons and brokers. Covers time management, telephone techniques, lead canvassing, client need assessment, handling objections, obtaining an offer, presenting the offer, listing techniques, marketing and other necessary topics that make the person attractive as an associate with an established real estate firm.

Real Estate Law Abstracting and Title Closing D102
Feburary 15-April 12, 8 Thursday, 7-9:30 p.m., $100, 2 CEUs

Reviews the techniques employed in abstracting titles. Topics include: recording statutes, title abstracting, surveys and legal descriptions, title holdings, partnership agreements, mortgages, leasing, deeds of conveyance and settlements and closings. Prepares the student to satisfy the expectations of the law firm employer. Acquaints other interested persons with the details and procedures of title search, examination and closing. Pre-or corequisite; A101.

Appraising Income Properties B107
February 15-May 10, 12 Thursdays, 7-9:30 p.m., $130, 3 CEUs

Introduction to the appraisal of commercial, multiple residential and other income properties for the beginning appraiser, real estate broker-salesperson, lender, assessor or builder. Topics include: the appraisal process, site analysis and evaluation, building cost estimates, property value analysis, the market data approach, the income approach, gross rental and operating expenses, capitalization rates, methods of capitalization and the residual techniques, final correlation and appraisal report. Prerequisite: A103, or consent of instructor.

Basic Home Building A104
February 15-April 12, 8 Thursday, 7-9:30 p.m., $95, 2 CEUs

A simplified approach to new construction. Topics include new building materials, building codes, site selection, cost estimating and energy conservation in residential construction.

Special Real Estate Seminars

Market and Feasibility Analysis for Real Estate Ventures
January 26 and 27, 1979

Real Estate market research and economic feasibility studies provide the information necessary to make sound development and investment decisions. This seminar investigates the sources of supporting data and methodology used in real estate analysis and the various approaches to calculating return on investment once marketability has been determined. Topics include: economic and demographic analysis, determinants of real estate supply and demand, analytical techniques to calculate return on investment, the effects of taxation and leverage and presentation of an actual case study.

Salesperson's and Brokers Review $60

January 20, 8:30-4:30 p.m.
April 21, 8:30-4:30 p.m.

Designed for those who have completed the licensure course in Real Estate but need a review before taking the Real Estate License Examination given by the Massachusetts Board of Registration of Real Estate Brokers and Salespersons. Topics include: Massachusetts license law, law of agency, deeds, contracts, mortgages, liens and easements, leases, appraisals, ownership and interests, instrument preparation and typical math questions.

Career Night: A Public Seminar (Free)

January 25, 7-9 p.m.

The Real Estate Certificate Program is sponsoring a two-hour seminar designed to acquaint both students and professionals with the opportunities available in the real estate industry. If you are contemplating a career change or if you are uncertain about your professional goals, you should find answers to your questions at this seminar. Real Estate faculty members and advisors will discuss opportunities in sales, finance, title examination, land development, brokerage, mortgages, appraisals, practice management and introduction management. For further information, contact Carol B. MacKnight at (413) 549-4970, Division of Continuing Education.

Courses for Summer 1979

Modern Real Estate Practices A209

June 5-July 31, 8 Tuesdays, 2.4 CEUs

Designed to provide the student with an introduction to the study of the real estate profession. Topics include: physical, legal, and economic characteristics of real estate, general business law, real estate contracts, finance, brokerage administration, land development and appraising techniques. This course prepares students for the Real Estate Salesperson's Exam.

Effective Negotiating Techniques in Real Estate C120

June 4-Jne 27, 4 Monday and Wednesday evenings 7-9:30 p.m., 2 CEUs

For those wishing to develop confidence in negotiating the purchase price, sale, or lease of real property. Topics include improving negotiating ability by learning to understand the client's needs, dealing with aggressive behavior, and applying real estate knowledge to achieve personal objectives. Case studies and simulations demonstrate the principles of successful negotiations and improve negotiating skills.

Other courses will be added in response to students' needs, providing that a minimum enrollment figure can be achieved. Students should make known their requests for other courses before March 1, 1979, by calling Carol B. MacKnight, (413) 549-4970, or writing, Real Estate Certificate Program, 104 Hasbrouck, University of Massachusetts, Amherst, MA 01003.

Insurance License Preparation: Accident and Health D226

February 12-May 14, 10 Mondays, 7-9 p.m., $95, 2 CEUs

Recommended by the Division of Insurance, Commonwealth of Massachusetts, prior to sitting for the license examination in Accident and Health. Students completing the seminars in Fire and Casualty, Accident and Health, and Life Insurance meet the educational requirements of 90 hours of the Full Broker's License. Prepares students for the Accident and Health Insurance Licensing Examination.

Insurance License Preparation: Life D225

February 14-April 25, 10 Wednesdays, 7-9 p.m., $95, 2 CEUs

For the person who plans to take the Life Insurance Licensing Examination. Designed to meet the educational requirements in the Commonwealth of Massachusetts.

Plant Engineering Program

Heating and Cooling Systems Design: Psychometrics and Load Calculation

February 21-April 2, 10 Wednesdays, 7-9:30 p.m., $145, 2.4 CEUs

Topics include: review of equipment and materials identification, estimating heating and cooling loads, types of generating systems, ventilation requirements, refrigeration, psychometrics, air distribution requirements, water and environment control, temperature controls, humidity sound energy and energy conservation.

To register, contact the Continuing Education Registration Office, 113 Hasbrouck, University of Massachusetts, Amherst MA 01003, telephone (413) 545-3653, or use the "Credit-Free Workshop" application in this catalog.

Second Bachelor's Degree

In cooperation with the University of Massachusetts' Admissions Office, the Division of Continuing Education offers a part-time program to prepare students in a variety of fields for a second Bachelor's degree. The purpose of the Second Bachelor's Degree program is to offer to college graduates the opportunity to do additional **part time** undergraduate study in a field unrelated to previous degree study. This part-time study is restricted to three courses or eleven credits. See **Overloads.** The program serves: 1) as a route for those students who want to complete a prerequisite, undergraduate major in an area different from their first Bachelor's degree study in preparation for graduate study; or 2) as a route for those students who do not need to do graduate study in order to meet job/career requirements or changes, but do require additional formal education.

A graduate of the University of Massachusetts must acquire a minimum of 30 credits at UMass, fulfilling departmental and school or college degree requirements. Graduates of other institutions of higher learning must fulfill a minimum of 45 credits at UMass.

Contact Harry Neunder, Student Services, Division of Continuing Education, Hasbrouck, University of Massachusetts, Amherst MA 01003, for advising and application. The deadlines for applying are October 1 for the spring and March 15 for the fall. Late applications will be considered on a space-available basis. All academic policies and standards of the University, as well as of the Division of Continuing Education, will apply.

Teacher Education

The Division of Continuing Education, in cooperation with the Teacher Education Council (TEC) of the School of Education, and with other academic departments of the University offers a program for post-baccalaureate students that leads to teacher certification in elementary or secondary education. Most of the Teacher Education programs require a minimum two-semester commitment. Coursework is taken the first semester. It should be noted that this is *not* a graduate program. It is designed *only* for teacher certification.

Certification is available in elementary education or in a large number of secondary school subject areas. A Continuing Education advisor can provide information about specific programs of study, or students may contact the School of Education Undergraduate Affairs Office,125B School of Education, (413) 545-2701. NOTE: Certification is *not* available in Business, Industrial Arts, Driver Education or for the position of Teacher of Children with Special Needs.

ADMISSION AND APPLICATION:

The Post-Bacalaureate Teacher Certification program is designed to allow students who have already completed a Bachelor's degree an opportunity to become certified in Massachusetts at the elementary or secondary level. The admissions decision takes into account the applicant's written statement about his or her desire to become a teacher, letters or recommendation, the applicant's work experience relating to children and the teaching profession and previous academic performance.

Initial adceptance by the Coordinator of Post-Baccalaureate Teacher Certifing profession and previous academic performance.

Initial acceptance by the Coordinator of Post-Baccalaureate Teacher Certification Programs must be followed by acceptance into a specific academic program in the School of Education of the appropriate University Department where a detailed course of study will be determined.

For further information and an application form, write to: Harry Neunder, Office of Transfer Affairs, 208 Whitmore, University of Massachusetts, Amherst, MA 01003 (413) 545-3430. Completed applications must be received by April 1, 1979 for the Fall 1979 semester, or by October 1, 1979 for the Spring 1980 semester. Late applications may be considered on a space-available basis.

Technical Guidance Center for Environmental Quality

The Technical Guidance Center for Environmental Quality functions as an energy/environmental outreach program providing educational services and resources to the general public. Resources, in addition to staff services and referrals, include a comprehensive and current collection of reports, periodicals, abstract series, film listing and directories. Articles, newsclips and other materials covering relevant subject areas are cataloged for public use. The annotated energy files are particularly comprehensive, containing references to most major publications in the field. Among the Center's areas of interest are environmental quality, energy resources and conservation, and land use, as well as related policy, legislation, and regulations. The Center also provides its own publications, including the *TGC Bulletin,* a periodic newsletter.

Current projects and programs include collaboration in environmental sciences/in-service teacher training programs in several rural school districts, resulting in a prior needs assessment, and a series of statewide day-long forums on energy, environment and economics. The latter, a dialogue on energy issues, is expected to involve such diverse audiences as scientists and engineers, citizen groups, public audiences, utility companies and the media. For the forums, a *Register* has been compiled containing academic experts from 67 colleges and universities across the state, including their areas of interest. The *Register* will be disseminated free of charge to participants, local libraries and community groups.

Many activities of the Technical Guidance Center are work-related programs designed to advance conpetence in special areas of concern in response to the needs of professionals. Workshops and symposia focus on timely topics relevant to changes in environmental fields.

The Technical Guidance Center is located at 135 Hasbrouck on the University of Massachusetts campus at Amherst, Amherst MA 01003, telephone (413) 549-4970.

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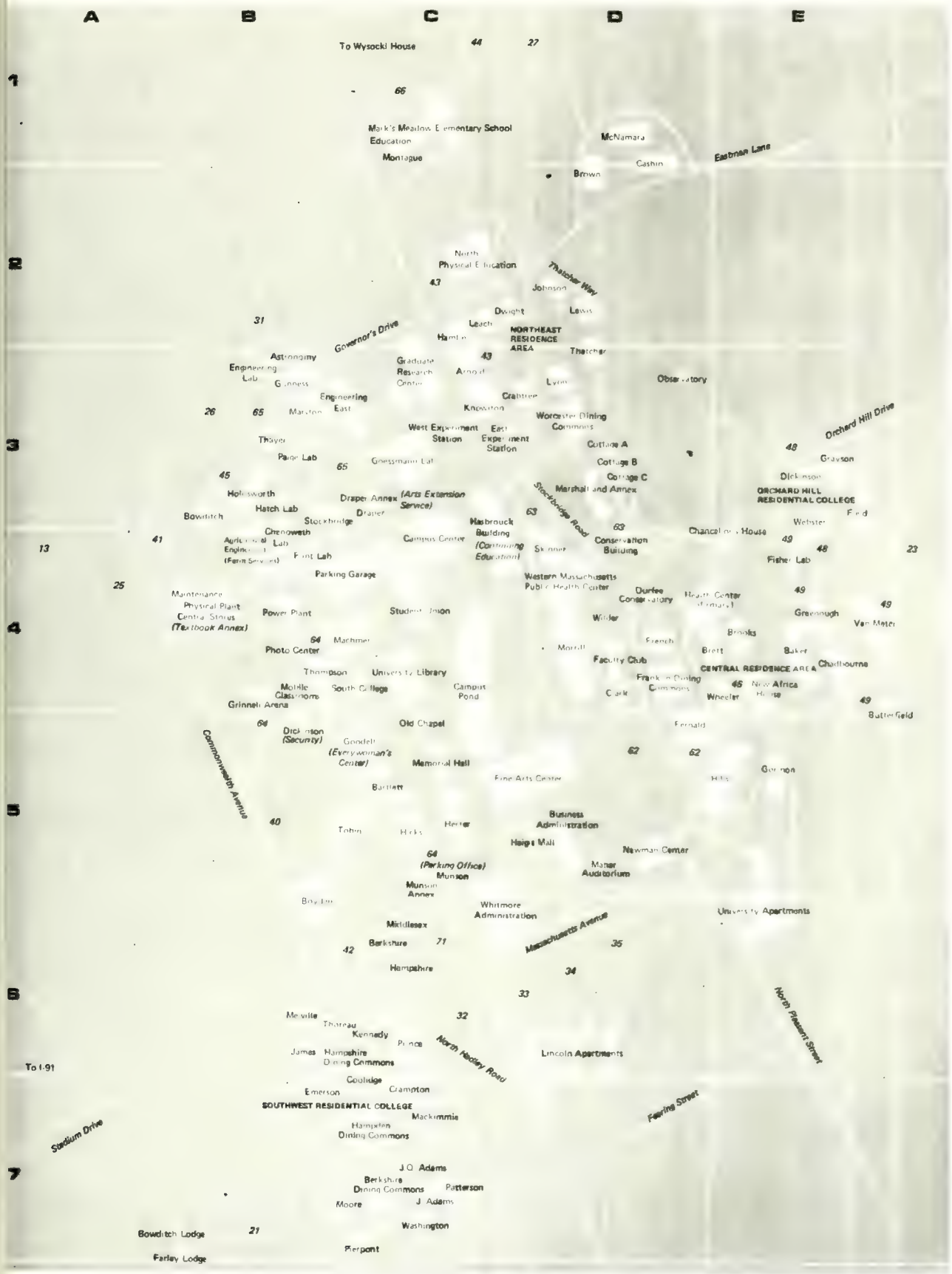
Map Key

CA=Central Residence Area
NA=Northeast Residence Area
OH=Orchard Hill Residence Area
SW=Southwest Residence Area

J-AD	J. Adams (SW)	C7
Q-AD	J.Q. Adams (SW)	C7
AEB	Agricultural Engineering Building	B4
ARND	Arnold	C3
ASTR	Astronomy	B3
BAKR	Baker (CA)	E4
BART	Bartlett	C5
BERK	Berkshire	C6
BERK DC	Berkshire Dining Commons	C7
BOWD	Bowditch	B3
BOWD LD	Bowditch Lodge	B7
BRET	Brett (CA)	D4
BRKS	Brooks (CA)	E4
BRWN	Brown	D2
BFLD	Butterfield (CA)	E5
CC	Campus Center	C4
CNCE	Cance (SW)	C7
CASH	Cashin	D1
CHAD	Chadbourne (CA)	E4
CH HSE	Chancellor's House	E4
CHEN	Chenoweth Lab	B3
CLRK	Clark	D4
CONS BLD	Conservation Bldg.	D4
COOL	Coolidge (SW)	C6
COTG-A	Cottage A	D3
COTG-B	Cottage B	D3
COTG-C	Cottage C	D3
CRAB	Crabtree (NA)	C3
CRAM	Crampton (SW)	C7
DHSE	Dickinson (OH)	E3
DKSN	Dickinson (Security)	B5
DRA	Draper	C3
DRAX	Draper Annex (Arts Extension Service)	C3
DURF	Durfee Conservatory	D4
DWGT	Dwight (NA)	C2
EDUC	Education Bldg.	C1
EMSN	Emerson	B7
ENGE	Engineering East	C3
ELAB	Engineering Lab	B3
EWC	Everywoman's Center	C5
FAC CL	Faculty Club	D4
FAR LD	Farley Lodge	B7
FERN	Fernald	D5
EUGE	Field (OH)	E3
FAC	Fine Arts Center	C5
FISH	Fisher Lab	E4
FLIN	Flint Lab1	B4
FRAN DC	Franklin Dining Commons (CA)	D4
FREN	French	D4
GOES	Goessmann Lab	C3
GDEL	Goodell	C5
GORM	Gormon (CA)	E5
GRES	Graduate Research Center	C3
GTWR	Graduate Research Tower	C3
GRAY	Grayson (OH)	E3
GNGH	Greenough (CA)	E4
GRIN	Grinnell Arena	B4
GUN	Gunness	B3
HAIG	Haigis Mall	C5
HAML	Hamlin (NA)	C2
HAMP DC	Hampshire Dining Commons (SW)	B6
HAS	Hasbrouck Bldg. (Continuing Education)	C4
HTCH	Hatch Lab	B3
INFI	Health Center (Infirmary)	D4
HERT	Herter	C5
HICK	Hicks	C5
HILLS	Hills	E5
HOLD	Holdsworth	B3
JAMS	James (SW)	B6
JOHN	Johnson (NA)	D2
KENN	Kennedy (SW)	C6
KNOW	Knowlton (NA)	C3
LEAC	Leach (NA)	C2
LEWS	Lewis (NA)	D2
UM LIB	Library	C4
LCLN	Lincoln Apartments	D6
LYON	Lyon (NA)	D3
MACH	Machmer	C4
MCK	Mackimmie	C7
MAHAR	Mahar Auditorium	D5
MKS MW	Mark's Meadow Elementary School	C1
MAR	Marshall	D3
MARX	Marshall Annex	D3
MRST	Marston	B3
MCNA	McNamara	D1
MEL	Melville (SW)	B6
MEM	Memorial Hall	C5
MDSX	Middlesex	C6
MOB	Mobile Music Classrooms	B4
MONT	Montague	C1
MOOR	Moore (SW)	B7
MOR	Morrill Science Center	D4
MN	Munson	C5
MNX	Munson Annex	C5
AFCA	New Africa House	E4
NEW	Newman Center	D5
NOPE	North Physical Education Bldg.	C2
OBS	Observatory	D3
CHAP	Old Chapel	C5
PAIG	Paige Lab	B3
PARK	Parking Garage	C4
PAT	Patterson (SW)	C7
PIER	Pierpont (SW)	C7
PWR	Power Plant	B4
PRIN	Prince (SW)	C6
PHB	Public Health Bldg.	D4
SBA	School of Business Administration	D5
SK	Skinner	D4
SOCL	South College	C4
STK	Stockbridge	B3
STUN	Student Union	C4
TBKX	Textbook Annex	B4
THAT	Thatcher (NA)	D3
THOM	Thompson	B4
THOR	Thoreau (SW)	B6
TOBN	Tobin	C5
UNIV	University Apartments	E6
VAN	Van Meter (CA)	E4
WASH	Washington (SW)	C7
NOAH	Webster (OH)	E3
WEX	West Experiment Station	C3
WHLR	Wheeler (CA)	E4
WHIT	Whitmore Administration Bldg.	C6
WILD	Wilder	D4
WYKI	Wysocki House	C1


A
B
C
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7
To Wysocki House
Mark's Meadow Elementary School
Education
Montague
McNamara
Eastman Lane
Cashin
Brown
North
Physical Education
Thatcher Way
Johnson
Dwight
Lewis
Leach
Hamlin
NORTHEAST RESIDENCE AREA
Thatcher
Governor's Drive
Astronomy
Engineering Lab
Gunness
Graduate Research Center
Arnold
Lyon
Observatory
Engineering East
Marston
Crabtree
Knowlton
Worcester Dining Commons
West Experiment Station
East Experiment Station
Thayer
Paige Lab
Goessmann Lab
Cottage A
Cottage B
Cottage C
Marshall and Annex
Orchard Hill Drive
Grayson
Dickinson
ORCHARD HILL RESIDENTIAL COLLEGE
Holdsworth
Hatch Lab
Draper Annex
(Arts Extension Service)
Draper
Bowditch
Stockbridge
Stockbridge Road
Hasbrouck Building
(Continuing Education)
Skinner
Conservation Building
Chancellor's House
Webster
Field
Fisher Lab
Auditorium
Engineering
(Farm Services)
Lab
Paint Lab
Campus Center
Parking Garage
Western Massachusetts Public Health Center
Durfee Conservatory
Health Center (Infirmary)
Maintenance
Physical Plant
Central Stores
(Textbook Annex)
Power Plant
Student Union
Willer
Greenough
Van Meter
Photo Center
Machmer
Morrill
French
Brooks
Brett
Baker
Faculty Club
CENTRAL RESIDENCE AREA
Chadbourne
Thompson
University Library
Mobile Classrooms
South College
Campus Pond
Franklin Dining Commons
New Africa House
Wheeler
Clark
Grinnell Arena
Butterfield
Old Chapel
Fernald
Dickinson (Security)
Goodell
(Everywoman's Center)
Commonwealth Avenue
Memorial Hall
Fine Arts Center
Hills
Garrison
Bartlett
Business Administration
Tobin
Herter
Hicks
Hasbrouck
Haigis Mall
Newman Center
(Parking Office)
Munson
Mather Auditorium
Munson Annex
Boyden
Whitmore Administration
University Apartments
Middlesex
Berkshire
Massachusetts Avenue
Hampshire
Melville
Thoreau
Kennedy
Prince
North Hadley Road
James
Hampshire Dining Commons
Lincoln Apartments
North Pleasant Street
To I-91
Coolidge
Emerson
Crampton
SOUTHWEST RESIDENTIAL COLLEGE
Mackimmie
Fearing Street
Stadium Drive
Hampden Dining Commons
J.Q. Adams
Berkshire Dining Commons
Patterson
Moore
J. Adams
Washington
Bowditch Lodge
Farley Lodge
Pierpont

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Evening Courses Offered in Amherst, Northampton, Palmer, and Springfield

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University of Massachusetts at Amherst

Fall
Semester
1978

late afternoon and evening

School of Education
Learning Opportunities

May, 1978

Dear Fellow Educator:

It is a pleasant duty to write the introduction to this fourth, semi-annual Late Afternoon and Evening Catalog. Once again, we have designed it with teachers, administrators and other school personnel in mind. The catalog provides information on late afternoon and evening courses, inservice and graduate programs and registration. A description of the three divisions of the School of Education is included to help you understand our structure so as to facilitate the planning of your program here.

We hope the wide variety of both traditional and non-traditional courses offered in this catalog as well as the high calibre of our nationally renowned faculty will interest you in taking courses at the School of Education. In addition, as a student in any of our courses, the impressive cultural and academic resources of the entire University are made available to you. These include the University of Massachusetts Library with well over 1,500,000 books, periodicals and government documents, as well as more than 550,000 microforms.

Finally, I would like to take this opportunity to thank you for the increasing interest you have exhibited in the School of Education. As you will see from this catalog, because of your enthusiastic response, we are continuing the expansion of our course offerings in the areas of Humanistic Education, International and Multicultural Education, Research and Evaluation and Special Education, in addition to maintaining a full complement of courses in other subject areas. We have also begun a major thrust in the domain of Human Services. The impetus for these new initiatives was derived from your comments and suggestions about this catalog, our courses and our programs. Therefore, we once again welcome your extremely valuable input in our ongoing effort to more effectively meet the needs and concerns of educators throughout the Commonwealth.

Sincerely,

Mario D. Fantini

Mario D. Fantini
Dean

An Invitation

This catalog is designed for the teacher, administrator, and other persons actively engaged in education. It invites the reader to attend classes with many of our full time and inservice master's and doctoral students in the late afternoon and evening. More than ninety-five such courses are listed and described in the following pages for your information and convenience.

The publication of this catalog reflects the determination of the School of Education to be of service to the educators of the Commonwealth. It also reflects the strong conviction that resident graduate students and School of Education faculty have much to gain from contact with those currently practicing the teaching and administrative arts.

Among those practicing their professions in Western Massachusetts school systems are future inservice and full time master's degree and doctoral students. The reader may well become one of them. You should know, therefore, that if in the future you are accepted as a degree candidate up to six university credits earned as a non-degree student may be applied toward a master's or doctoral degree, subject to approval by the Dean of the Graduate School.

The following pages address many question regarding:

Academic Calendar Fall, 1978, p. 3

Registration Procedures and Expenses, p. 3

Fall Late Afternoon and Evening Courses, p. 5

School of Education Organization, p. 30

School of Education Administrative Personnel, p. 28

Graduate Degree Programs, p. 28

Inservice Programs, p. 29

Parking Facilities, p. 32

University Services, p. 33

Faculty, p. 34

Calendar

Tuesday	September	5	Registration for graduate students
Wednesday	September	6	Classes begin
Tuesday	September	12	Last day to register
Tuesday	September	19	Last day to ADD courses
Monday	October	2	Application deadline/Spring 1979
Monday	October	9	Holiday
Wednesday	October	18	Last day to DROP courses with DR
Friday	November	10	Holiday
Monday	November	13	Spring semester pre-registration week begins
Wednesday	November	22	Thanksgiving recess begins after last class
Monday	November	27	Classes resume
Monday	December	18	Final examinations begin
Saturday	December	23	Final examinations end; Christmas recess begins
Friday	December	29	Degree requirements deadline for February 1, 1979 degrees

Registration & Expenses

DEGREE STUDENTS

Students presently enrolled in degree programs should follow regular registration procedures.

THREE OPTIONS FOR NON-DEGREE STUDENTS

Complete and mail the pre-paid card attached to the School of Education poster. After receiving your completed card, we will send you a Non-Degree Application and Residency Card.* (You may telephone to request an application and residency card directly from the Office for Program Planning & Development - 545-1574).

Complete the Application and Residency Card, and register in any one of the following three ways:

1. Send both forms by July 14 to:
   Office for Program Planning & Development
   Room 126
   School of Education
   University of Massachusetts
   Amherst, MA 01003
2. Bring both forms to Graduate Admissions Office, Room A243, Graduate Research Center, by July 19.
3. Bring both forms to Boyden Gym (9 a.m. - 12 noon/1:30 - 4:30 p.m.) on September 5.

TUITION

Residents of Massachusetts: $33.50 per credit

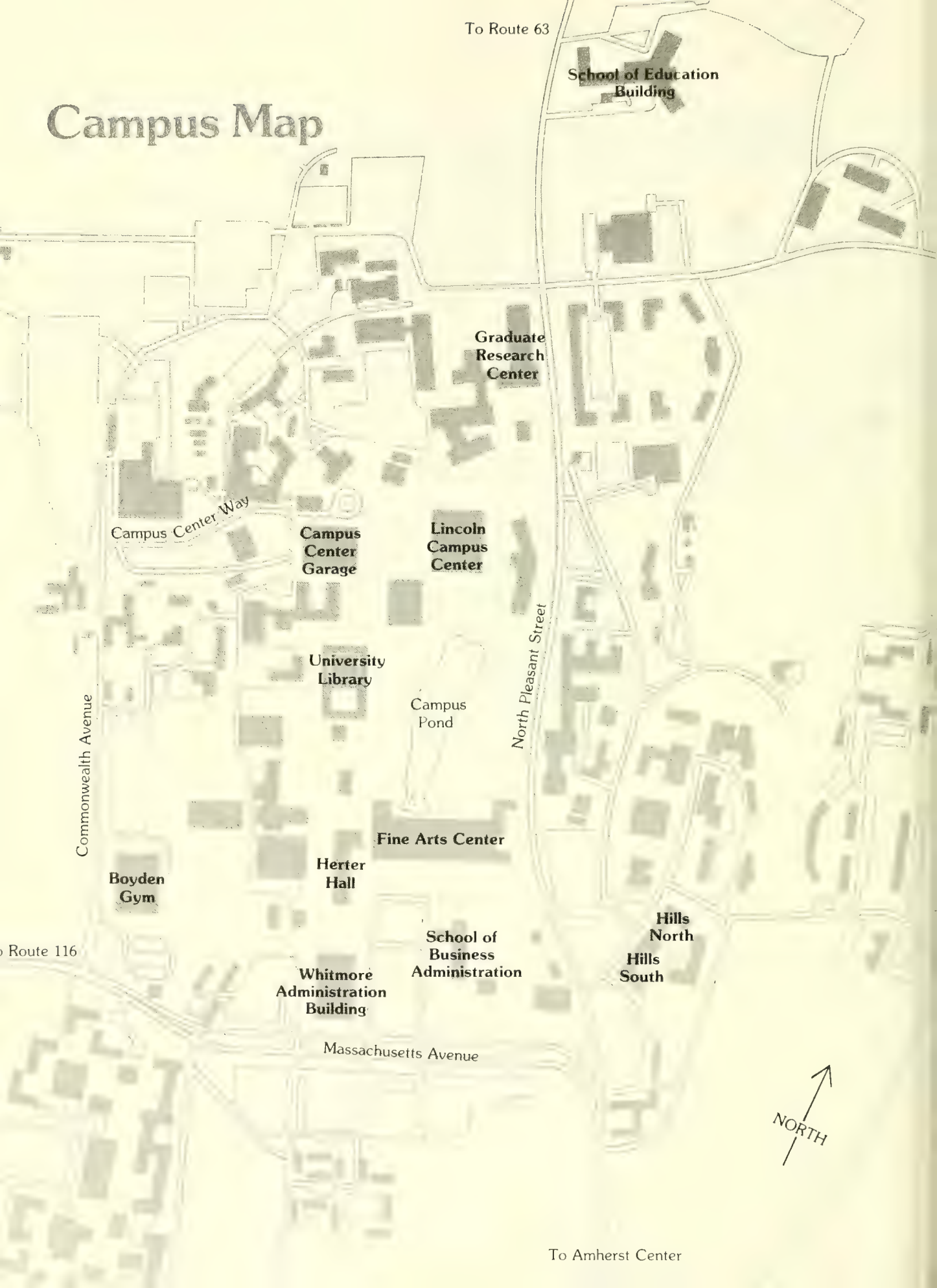
GENERAL FEES

When taking four credits or fewer: approximately $37.75 per semester

When taking five credits or more: approximately $114.50 per semester

*A new non-degree application must be completed every Fall semester.

Campus Map


To Route 63
School of Education Building
Graduate Research Center
Campus Center Way
Campus Center Garage
Lincoln Campus Center
University Library
Campus Pond
North Pleasant Street
Commonwealth Avenue
Fine Arts Center
Herter Hall
Boyden Gym
Hills North
Hills South
School of Business Administration
Whitmore Administration Building
Massachusetts Avenue
NORTH
To Amherst Center

Courses

The Fall semester courses that follow have been categorized and cross-referenced into thirteen basic areas:*

Administration, p. 6

Bilingual Bicultural and English as a Second Language, p. 8

Counseling, p. 9

Curriculum and Instruction, p. 11

Early Childhood, p. 16

Foundations, p. 17

Humanistic Education, p. 18

International and Multicultural Education, p. 21

Media, p. 22

Research and Evaluation, p. 23

Special Education, p. 25

Urban Education, p. 26

Vocational and Occupational Education, p. 27

Courses designated by a 500 number are undergraduate/graduate level. Courses numbered above 600 are graduate level.

All courses carry 3 credits unless otherwise indicated.

*Please note that the School of Education offers many courses in the area of Human Services. For courses related to human service, see especially: Counseling, Early Childhood, Humanistic Education and Special Education.

Administration

Monday

H792A COMMUNITY MENTAL HEALTH ADMINISTRATION

4-6:30 p.m., Enrollment 20, Hills South, Room 467

Administrative structure, problems, and service delivery of a community mental health agency in a bilingual, multi-ethnic target area. In-depth view of process of community involvement in mental health services. Problems and issues affecting professional and consumer.
Priority: graduate status in counseling or mental health
Instructor: Gene Orro

I690Q COLLECTIVE BARGAINING AND THE AMERICAN SCHOOL

4-6:30 p.m., Enrollment 40, School of Education, Room 222

Historical, social, economic and legal factors leading to the collective bargaining movement among American classroom teache in the '60s and '70s. Structure and practices of collective bargaining in education; impact on personnel policy, education quality, innovation, public policy.
Instructors: Earl Seidman, Tim Bornstein

I872 SUPERVISION AS A HELPING RELATIONSHIP

4-6:30 p.m., Enrollment 10, Location to be announced

See: Humanistic Education, Monday
Instructor: Mason Bunker

P690N INTRODUCTION TO METHODOLOGY

4-6:30 p.m., Enrollment 25, Hills South, Room 267

See: Research & Evaluation, Monday
Instructor: Thomas Hutchinson

P690T MANAGEMENT SYSTEMS

4-6:30 p.m., Enrollment 15, Location to be announced

Introduction to the concepts of planning, budgeting, information systems, institutional research, and evaluation in the educational enterprise.
Instructor: Ernest Anderson

Tuesday

H790T DEINSTITUTIONALIZATION: ISSUES & PROBLEMS IN THE DESIGN & MANAGEMENT OF PATIENT RE-ENTRY SYSTEMS

4-6:30 p.m., Enrollment 20, Hills South, Room 455

Issues and problems endemic to the process of patient deinstitutionalization. Professional and personal competencies requisite for maintenance of therapeutic support services in external residence programs. Approaches to the establishment of alternatives to Mental Health and Mental Retardation Housir institutions.
Priority: human services, counseling, mental health students; graduate status only
Instructor: Gene Orro

I740 MICRO-TEACHING: DEVELOPMENT AND IMPLEMENTATION

4-6:30 p.m., Enrollment 16, School of Education, Room 21A

See: Research & Evaluation, Tuesday
Instructor: Robert Miltz

P690E PUBLIC POLICY, EDUCATION, AND THE LAW

4-6:30 p.m., Enrollment 30, Hills South, Room 267

The way in which the law resolves conflicts between students, teachers, parents, and administrators on current issues such as freedom of expression, conscience and association, discrimination, school financing, tenure, etc. Major legal and educational remedies. Legal principles used by courts to resolve controversies.
Priority: leadership & administration and legal literacy students
Instructor: David Schimmel

P690F EDUCATION, POLITICS AND PUBLIC POLICY ANALYSES

4-6:30 p.m., Enrollment 12, Hills South, Room 259

First half of a two-semester course. New approach to conceptualization of what we know and how to deal with events in the everyday world. Questions about education from a phenomenological view.
Instructor: David Schuman

P758 SCHOOL PERSONNEL ADMINISTRATION

4-6:30 p.m., Enrollment 30, Hills South, Room 149

The leadership role in staff performance and duties, the planning and promotion of continuous programs of inservice training, and personnel recruitment and development.
Prerequisite: Educ P726 Fundamentals of Educational Administration
Instructor: Harvey Scribner

P790L DEVELOPMENT OF METHODOLOGY

4-6:30 p.m., Enrollment 20, Hills North, Room 423

See: Research & Evaluation, Tuesday
Instructor: Thomas Hutchinson

Thursday H742 PROBLEM SOLVING METHODS FOR EDUCATIONAL CONSULTANTS

3:35-6:35 p.m., Enrollment 25, Hills South, Room 483, 4 credits

Concepts, strategies, and group behavior practices that positively or negatively affect the outcome of efforts to solve complex educational problems.
Instructor: Jeffrey Eiseman

P727 ADMINISTERING ELEMENTARY SCHOOLS

4-6:30 p.m., Hills North, Room 423

The principal's responsibilities, organization of the school office, scheduling, use of school facilities, curriculum organization, staff relationships, and the place of the school in the community.
Prerequisite: teaching experience
Instructor: Harvey Scribner

I851 PRINCIPLES OF SUPERVISION

4-6:30 p.m., Enrollment 15, School of Education, Room 21A

Principles and problems of supervision and the exercise of educational leadership to improve instruction in the elementary curriculum and in secondary school content fields.
Instructor: Peter Mattaliano

Bilingual Bicultural & E.S.L.

Monday I590W RESEARCH METHODS IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 219

Introduction to methodology and social research techniques. Classic problems of research such as "objectivity," ethical considerations, socio-cultural obstacles to research. Techniques for the design, organization, and construction of model for research projects. Model implementation in bilingual bicultural contexts. Taught in Spanish.
Instructor: Gloria deGuevara

I591G FUNDAMENTALS OF BILINGUAL BICULTURAL EDUCATION

4-6:30 p.m., Enrollment 20, School of Education, Room 228

Socio-political and psychological implications of monolingual/monocultural approaches to education as compared to bilingual/bicultural approaches. Current state legislation mandating bilingual education. Development of criteria for establishing bilingual education programs. Taught in Spanish and English.
Instructor: Luis Fuentes

Wednesday *I490A ASPECTS OF PUERTO RICAN CULTURE FOR BILINGUAL EDUCATORS

6-8:30 p.m., Enrollment 25, School of Education, Room 22

History of the Puerto Rican people with implications to biling ualism. Pre-colonial history, Spanish colonization, African slavery, the birth of political conscience, colonial exploitation, class struggle and autonomical politics up to 1898.
Instructor: Miguel Rivera

I590O METHODS IN TEACHING ENGLISH AS A SECOND LANGUAGE TO ADOLESCENT AND ADULTS

6:30-9 p.m., Enrollment 15, School of Education, Room 219

See: Curriculum & Instruction, Wednesday
Instructor: Luis Fuentes

I793N SEMINAR: ISSUES IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 21C

Major developing issues in bilingual education. Topics incluc politics of bilingual education, dynamics of ethnic identity/politics, sociolinguistic studies, teacher training models, us of vernacular in schools, testing, program types, psychologica issues.
Prerequisite: permission of instructor
Instructor: Luis Fuentes

*Although for undergraduate credit only, may be applied toward certification in Bilingual Education.

Thursday I590Z INTRODUCTION TO BEHAVIORAL ANALYSIS IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 16, School of Education, Room 219

Application of behavioral principles to classroom situations as a means of strengthening teaching behavior. Specific classroom target behaviors used for analysis and application of behavioral principles. Taught in Spanish.
Priority: bilingual education students
Instructor: Gloria deGuevara/Carmen Rodriguez

I591A SEMINAR IN APPLICATIONS OF COMMUNITY PARTICIPATION TO BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 22

Varied topics related to community participation in schools. Taught in Spanish and English.
Instructor: Luis Fuentes, Juan Rosario

Counseling

H609 GROUP ACTIVITIES IN COUNSELING

September 6, 7-9 p.m.
October 18, 7-9 p.m.
November 2, 4:30 p.m. - November 5, 4 p.m., Retreat
November 15, 7-11 p.m., Hills South, Rooms 483 & 455
December 13, 7-11 p.m., Hills South, Rooms 483 & 455
Room & Board $48.50, Enrollment 40

A guidance study of school groups; group dynamics, discussion techniques, group counseling, sociometric methods and other school group activities.
Prerequisite: permission of instructors
Instructors: Norma Jean Anderson, Donald Carew

Monday H605 SCHOOL COUNSELING THEORY

4-6:30 p.m., Enrollment 20, Location to be announced

Counseling theory and research evaluation. Methodology, philosophies, ethics, problems, and issues of school counseling.
Priority: counseling majors
Prerequisite: permission of instructor; must be taken concurrently with Educ H606
Instructor: Allen Ivey

H606 SCHOOL COUNSELING PROCEDURES

7-9:30 p.m., Enrollment 20, Location to be announced

Instruments and techniques of guidance, such as observation, individual appraisal, record-keeping, and school - community liaison practices.
Priority: counseling majors
Prerequisite: permission of instructor; must be taken concurrently with Educ H605
Instructor: Allen Ivey

H790O FAMILY COUNSELING II - INTERVENTION METHODS AND PRACTICE

4-7 p.m., Enrollment 20, Hills South, Room 455

Major theories of family counseling intervention methods, including structural, family systems, communications, and psychodynamic methods. Development of criteria for judging appropriateness of methods in given situations. Application of intervention methods in classroom simulations.
Prerequisites: Educ H747 Family Counseling I; permission of instructor
Instructor: Evan Coppersmith

Tuesday H590A RACISM: A CURRICULUM FOR TRAINERS AND COUNSELORS

4-6:30 p.m., Enrollment 16, Hills South, Room 373

See: Humanistic Education, Tuesday
Instructor: Frederick Preston

H653 HELPING ADOLESCENTS COPE WITH THEIR PROBLEMS

7-9:30 p.m., Enrollment 25, Hills South, Room 367

How to help adolescents understand forces acting on them, clarify goals and values, design and implement problem solutions, and engage in long term growth and development.
Instructor: Jeffrey Eiseman

Wednesday H701 PRACTICUM IN SCHOOL GUIDANCE

4-6:30 p.m., Enrollment 110, Hills South, Rooms 467, 455, and 483, 3-9 credits

Field experience under supervision. For students in final part of master's programs.
Prerequisites: Educ H570 Principles of School Guidance,
Educ H605 School Counseling Theory,
Educ H606 School Counseling Procedures
Instructors: Ellis Olim, Ena Nuttall, Allen Ivey

H754 ADVANCED PRACTICUM IN SCHOOL COUNSELING

4-6:30 p.m., Enrollment 10, Hills South, Room 367, 3-9 credits

Supervised practical experience for advanced students in the area of school counseling. Emphasis on process in counseling. Exploration of many theories and techniques.
Prerequisite: Educ 701 Practicum in School Guidance; permission of instructor
Instructor: Jack Wideman

Thursday H590K ALCOHOL AND ABUSE

7-9:30 p.m., Enrollment 30, Hills South, Room 367, 4 credits

Historic and traditional view of use and abuse of alcohol; current and new concepts in social response and treatment.
Prerequisite: ECE M.Ed. inservice student or permission of instructor
Instructor: David Day

H607 OCCUPATIONS AND PLACEMENT IN SCHOOL GUIDANCE

4-6:30 p.m., Enrollment 30, Hills South, Room 455

The collection and evaluation of occupational, educational, and placement information, and its use with individuals and groups of students in school guidance.
Instructor: Ron Fredrickson

Curriculum & Instruction

Monday

H678 PRACTICUM IN HUMANISTIC CURRICULUM DEVELOPMENT

7-9:30 p.m., Enrollment 20, Location to be announced

See: Humanistic Education, Monday
Instructor: Gerald Weinstein

I517 INTRODUCTION TO COMPUTER USE IN TEACHING

4-6:30 p.m., Enrollment 20, School of Education, L-shaped room

Introduces novices to uses of the computer in the teaching/learning process.
Instructor: Howard Peelle

I622 THE NATURE OF CREATIVITY

3:35-6:05 p.m., Enrollment 20, School of Education, Room 128

Cultural and personal factors conducive to creativity. Projects develop ways that teachers can facilitate creative behavior in high school students.
Instructor: Judithe Speidel

I684 PSYCHOLINGUISTICS AND READING

4-6:30 p.m., Enrollment 20, School of Education, Room 22

Contributions of psycholinguistic theory to an understanding of the reading process. A model of the reading process. Implications of psycholinguistic knowledge for reading instruction.
Instructor: Rudine Sims

I690Q COLLECTIVE BARGAINING AND THE AMERICAN SCHOOL

4-6:30 p.m., Enrollment 40, School of Education, Room 222

See: Administration, Monday
Instructors: Earl Seidman, Tim Bornstein

I690R SEMINAR IN LANGUAGE ARTS INSTRUCTION

7-9:30 p.m., Enrollment 25, School of Education, Room 128

Theory, research, and issues in the teaching of language processes other than reading. Instructional strategies for facilitating growth in listening, speaking, writing and linguistic awareness at the elementary school level. Emphasis on the interrelationships of language processes in development and instruction.
Prerequisite: some background in linguistics or language development
Instructor: Judith Gourley

I745 CURRICULUM INTEGRATION

4-6 p.m., and lab by arrangement, Enrollment 10, Graduate Research Center, Room 125

Theory and current practice of the integration of subjects in the curriculum of elementary schools and teacher training programs. Design of integrated curriculum for teacher education.
Prerequisite: permission of instructor
Instructor: Klaus Schultz

Art 512 PHILOSOPHY AND METHODS OF TEACHING ART

3:35-5:30 p.m., Monday and Wednesday, Fine Arts Center, Room 4

Current philosophies and current methods of teaching art in secondary schools.
Instructor: Carleton Reed

Eng. 712 WRITING AND THE TEACHING OF WRITING

4-7 p.m., Bartlett Hall, Room 312

Theory and practice of composing. Emphasis on the constructi and use of a brief critical vocabulary for helping students improve as clear and graceful writers. Several short written exercises in varied styles, and an oral report. Recommended for anyone concerned about the responsibilities of teaching courses in composition.
Instructor: Walker Gibson

French 572 METHODS OF TEACHING FOREIGN LANGUAGES

5:30-7 p.m., Monday and Wednesday, Herter Hall, Room 102

First of two consecutive practice-oriented courses on a wide variety of ideas and techniques for teaching all foreign languages, including English as a second or foreign language.
Instructor: Jean-Pierre Berwald

Latin 591A RHETORIC AND SEDUCTION IN OVID

7:30-8:45 p.m., Monday and Wednesday, Herter Hall

Ovid's use of seduction as a metaphor for rhetorical persuasi
Instructor: Robert Dyer

H691I OBSERVATIONAL METHODS IN CHILD PSYCHOLOGY

3:35-6:05 p.m., Enrollment 15, Skinner Hall

See: Early Childhood, Tuesday
Instructor: Roberta Collard

Tuesday

I509 PRINCIPLES AND METHODS IN TEACHING SECONDARY ENGLISH

4-6:30 p.m., Enrollment 25, School of Education, Room 128

Analysis of purposes, problems, issues, methods, and material in the teaching of English at the secondary level. Discussic lectures, case studies, projects. Prerequisite for student teaching in English.
Prerequisite: permission of instructor
Instructor: Earl Seidman

I568 CURRICULUM DEVELOPMENT IN URBAN EDUCATION

6:30-9 p.m., Enrollment 20, School of Education, Room 222

See: Urban Education, Tuesday
Instructor: Atron Gentry

I572 TEACHING READING TO SPECIAL POPULATIONS K-12

4-6:30 p.m., Enrollment 20, On-site at Ft. River School

Approaches to the teaching of reading to such special populations as the disadvantaged, the gifted, and the emotionally disturbed, with stress on the individualized and experience approaches. One group studied intensively.
Instructor: Masha Rudman

I690O VALUES EDUCATION IN SCIENCE

4-6:30 p.m., Enrollment 15, School of Education, Room 219

Goals of science education and the place of values in science education. Contrasting approaches to values education in the sciences. Values inquiry approach as a guide to curriculum development in the sciences. Development of a model science resource unit utilizing the values inquiry approach.
Priority: unified science students
Instructor: Leverne Thelen

I691K ORGANIZING FOR CLASSROOM READING INSTRUCTION

4-6:30 p.m., Enrollment 20, Off-campus

Ways of organizing a classroom for reading instruction. Alternative ways to group children for reading instruction. Instructional strategies suitable for the classroom organization.
Prerequisite: permission of instructor
Instructors: Rudine Sims, Judith Gourley

I710 SEMINAR IN MATHEMATICS EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 222

Recent developments in elementary mathematics education and their implications for exploring mathematics in the elementary school.
Instructor: William Masalski

P790D CURRICULAR ISSUES, METHODS AND MATERIALS IN MULTICULTURAL EDUCATION

4-6:30 p.m., Enrollment 20, Hills South, Room 267

See: International & Multicultural Education, Tuesday
Instructor: Bob Suzuki

Eng. 891H WORDSWORTH AND COLERIDGE

7-10 p.m., Bartlett Hall, Room 274

The relationship between Wordsworth and Coleridge and its results in the literary, intellectual, and social context of the period. Except for some juvenalia, students read most of Wordsworth's poetry through the 1805 Prelude (addressed to Coleridge) and of Coleridge's through the poem "To William Wordsworth" (on hearing the Prelude read).
Instructor: Richard Haven

Wednesday

I590 METHODS IN TEACHING ENGLISH AS A SECOND LANGUAGE TO ADOLESCENTS AND ADULTS

6:30-9 p.m., Enrollment 15, School of Education, Room 219

The second language learning process for an accomplished and beginning speaker at secondary and adult levels. Factors influencing motivation and success. Techniques and strategies to assist learners. Evaluation and development of instructional approaches.
Prerequisite: an introduction to education course
Instructor: Luis Fuentes

I632 INTRODUCTION TO PIAGET FOR ELEMENTARY EDUCATORS

4-6:30 p.m., Enrollment 15, School of Education, Room 219

Piaget's theory of intellectual development and its application to teaching and education in general.
Instructor: Klaus Schultz

I690P LANGUAGE AND LANGUAGE LEARNING

4-6:30 p.m., Enrollment 20, School of Education, Room 21B

Basic concepts in the scientific study of language. Application of such concepts to the English language. Process of language development in children. Relevance of linguistics and psycholinguistics to education.
Instructor: Judith Gourley

I709 SEMINAR IN READING

7-9:30 p.m., Enrollment 15, School of Education, Room 128

Topics include psycholinguistics and reading, miscue analysis, current issues, role of the reading consultant.
Prerequisite: Educ I684 Psycholinguistics and Reading or permission of instructor
Instructor: Rudine Sims

P665 ORGANIZATION FOR CURRICULUM DEVELOPMENT: BASIC PRINCIPLES IN CURRICULUM AND INSTRUCTION

4-6:30 p.m., Enrollment 15, Hills South, Room 149

Procedures and criteria for curriculum development. Determining goals, creating and organizing learning opportunities, and evaluating the effectivenss of curricula, considered in small group setting.
Instructor: Robert Sinclair

Art 512 PHILOSOPHY AND METHODS OF TEACHING ART

3:35-5:30 p.m., Monday and Wednesday, Fine Arts Center, Room 440

See: Curriculum & Instruction, Monday
Instructor: Carleton Reed

Eng. 732 SHAKESPEARE

7-10 p.m., Bartlett Hall, Room 302

Shakespeare's dramatic art. Approximately 18 plays in roughly chronological order. A survey course for those who have little acquaintance with Shakespeare.
Instructor: Normand Berlin

Eng. 891F — MEDIEVAL ARTHURIAN LITERATURE

4-7 p.m., Bartlett Hall, Room 274

Survey of Arthurian literature in Britain: 6th century legends, through Geoffrey of Monmouth's 12th century chronicle, 13th and 14th century romances, Malory's Morte Darthur, A culminating synthesis of all the preceding.
Instructor: Gary Aho

French 572 — METHODS OF TEACHING FOREIGN LANGUAGES

5:30-7 p.m., Monday and Wednesday, Herter Hall, Room 102

See: Curriculum & Instruction, Monday
Instructor: Jean-Pierre Berwald

Latin 591A — RHETORIC AND SEDUCTION IN OVID

7:30-8:45 p.m., Monday and Wednesday, Herter Hall

See: Curriculum & Instruction, Monday
Instructor: Robert Dyer

Thursday

I590X — THE ADOLESCENT EXPERIENCE

3:35-6:05 p.m., Enrollment 20, School of Education, Room 128

See: Humanistic Education
Instructor: Judithe Speidel

P790T — MYTH UNDERSTANDING AND HIGHER EDUCATION

4-6:30 p.m., Enrollment 12, Hills South, Room 149

Structured practicum experiences in a variety of community settings. Providing alternatives to traditional institutional settings.
Instructors: Earl Seidman, David Schuman

Eng. 745 — ROMANTIC LITERATURE

4-7 p.m., Bartlett Hall, Room 312

The major poems of Wordsworth, Coleridge, Blake, Keats, Shelley, and Byron from a variety of literary critical perspectives. Romanticism as the process of revolution and revolution as process.
Instructor: Thomas Ashton

Friday

P790C — STUDENT CHARACTERISTICS, STUDENT DEVELOPMENT, CURRICULUM CONSTRUCTION

4:30-8 p.m., Enrollment 30, Off-campus

The profile of students at community colleges. Development of an appropriate student development function. Design curriculum suited to their needs and consistent with the community college philosophy.
Open to community college personnel.
Instructor: Charlotte Rahaim

Early Childhood

Monday H591F SOCIAL COMPETENCY: A NEW APPROACH TO EVALUATION IN EARLY CHILDHOOD EDUCATION

7-9:30 p.m., Enrollment 20, Hills South, Room 467

New approach, with theme of social competency, to evaluation o programs for young children. Influence of culture and ethnicity on measures of cognition, motivation, health, and socia affective, and physical development in children.
Prerequisite: at least junior standing; several psychology or educational psychology courses
Instructor: Ernest Washington

Tuesday H691H SEMINAR IN EARLY CHILDHOOD PROGRAM ASSESSMENT

4-6:30 p.m., Enrollment 20, Hills South, Room 367

Fourth in a four-course sequence concerned with evaluation of ECE programs. Application of procedures previously learned to an assessment of student's program. Process and analysis of results in terms of program modification, staff training needs and the appropriateness of program goals.
Priority: ECE M.Ed. inservice students
Prerequisite: completion of previous three courses
Instructor: David Day

H691I OBSERVATIONAL METHODS IN CHILD PSYCHOLOGY

3:35-6:05 p.m., Enrollment 15, Skinner Hall

Evaluation of various studies which employ observational metho. Analysis of records (TV and other) of children's behavior. Observational study done on a child or infant using methods learned.
Instructor: Roberta Collard

Wednesday H691G COMPARATIVE THEORIES OF EARLY CHILDHOOD EDUCATION

4-6:30 p.m., Enrollment 20, Hills South, Room 373

Comparative analysis of original works in early childhood educ tion, especially those which present organized theories. Theories in thier broader social and economic contexts. Contem porary approaches to early childhood education.
Prerequisite: ECE doctoral student or permission of instructor
Instructor: George Forman

I632 INTRODUCTION TO PIAGET FOR ELEMENTARY EDUCATORS

4-6:30 p.m., Enrollment 15, School of Education, Room 219

See: Curriculum & Instruction, Wednesday
Instructor: Klaus Schultz

I690P LANGUAGE AND LANGUAGE LEARNING

4-6:30 p.m., Enrollment 20, School of Education, Room 21B

See: Curriculum & Instruction, Wednesday
Instructor: Judith Gourley

Foundations

Monday I622 THE NATURE OF CREATIVITY

3:35-6:05 p.m., Enrollment 20, School of Education, Room 128

See: Curriculum & Instruction, Monday
Instructor: Judithe Speidel

Tuesday P837 SEMINAR IN EDUCATIONAL HISTORY

4-6:30 p.m., Enrollment 14, Location to be announced

Selected periods or topics of educational history. Emphasis on progressive education movement.
Instructor: William Kornegay

Wednesday P690P HISTORY AND PHILOSOPHY OF VOCATIONAL EDUCATION

7-10 p.m., Enrollment 15, Hills North, Room 423

See: Vocational & Occupational Education, Wednesday
Instructor: Jack Hruska

I593A EDUCATION FOR COMMUNITY DEVELOPMENT AND ORGANIZATION

4-6:30 p.m., Enrollment 25, School of Education, Room 128

Theory and practice in influencing community development through organized educational efforts. Emphasis on nonformal ways of teaching and learning for community development. Examples in human services, government, business and private groups.
Instructor: Horace Reed

P590N SEMINAR IN EDUCATION: PHILOSOPHY OF EDUCATION

4-6:30 p.m., Enrollment 15, Location to be announced

Several currently influential philosophies of education: essentialism, romanticism, experimentalist progressivism, behaviorism, perennialism.
Prerequisite: graduate status
Instructor: Philip Eddy

P791A PRACTICUM IN FOUNDATIONS COMPONENT OF APEP

3:35-6 p.m., Enrollment 25, Wildwood School

For supervisors wishing to introduce their interns to a Foundations component within the intern experience. Meetings are planning sessions for the intern experience.
Prerequisite: permission of instructor
Instructor: Robert Wellman

Thursday P751 INDIVIDUAL ALIENATION AND CONTEMPORARY HIGHER EDUCATION

5-7:30 p.m., Enrollment 20, Off-campus

See: Humanistic Education, Thursday
Instructor: Jack Hruska

Humanistic

H679 VALUE CLARIFICATIONS FOR TEACHERS

September 16, 9 a.m.-4 p.m.
September 17, 9 a.m.-4 p.m.
Enrollment 30, Location to be announced, 2 credits

To help teachers clarify their own values; how these values affect their students in and out of the classroom.
Instructor: Sidney Simon

H609 GROUP ACTIVITIES IN COUNSELING

September 6, 7-9 p.m.
October 18, 7-9 p.m.
November 2, 4:30 p.m. - November 5, 4 p.m., Retreat
November 15, 7-11 p.m., Hills South, Rooms 483 & 455
December 13, 7-11 p.m., Hills South, Rooms 483 & 455
Enrollment 40, Room & Board $48.50

See: Counseling
Instructors: Norma Jean Anderson, Donald Carew

I590Q SPECIAL PROBLEMS IN EDUCATION: WORKSHOP ON EDUCATION AND INSTITUTIONAL RACISM

October 13, 7-11 p.m.
October 14, 9 a.m.-10 p.m.
October 15, 9 a.m.-5 p.m.
Enrollment 50, School of Education, Room 222, 2 credits

See: International & Multicultural Education
Instructor: Barbara Love

Monday

H605 SCHOOL COUNSELING THEORY

4-6:30 p.m., Enrollment 20, Location to be announced

See: Counseling, Monday
Instructor: Allen Ivey

H606 SCHOOL COUNSELING PROCEDURES

7-9:30 p.m., Enrollment 20, Location to be announced

See: Counseling, Monday
Instructor: Allen Ivey

H678 PRACTICUM IN HUMANISTIC CURRICULUM DEVELOPMENT

7-9:30 p.m., Enrollment 20, Location to be announced

Models for the development of humanistic curricula. Students employ one or more models in writing their own curricula and in evaluating their efforts.
Prerequistite: Educ H522 The Education of the Self
Instructor: Gerald Weinstein

H790O FAMILY COUNSELING II - INTERVENTION METHODS AND PRACTICE

4-7 p.m., Enrollment 20. Hills South, Room 455

See: Counseling, Monday
Instructor: Evan Coppersmith

I872 SUPERVISION AS A HELPING RELATIONSHIP

4-6:30 p.m., Enrollment 10, Off-campus

For graduate students with supervisory responsibilities. Research in psychological foundations of helping professions. Translating theory into field practice.
Prerequisite: permission of instructor
Instructor: Mason Bunker

Tuesday H522 THE EDUCATION OF THE SELF

7-10 p.m., Tuesday and Thursday (total: 16 sessions), Enrollment 30, Location to be announced

Educational strategies for increasing self-knowledge. Processes, concepts, and skills leading toward self-observation, pattern clarification, and the development of personal designs for response-experimentation.
Prerequisite: permission of instructor
Instructor: Sidney Simon

H590A RACISM: A CURRICULUM FOR TRAINERS AND COUNSELORS

4-6:30 p.m., Enrollment 16, Hills South, Room 373

Advanced counselor or trainer skills in race relations training; major training issues and processing internal conflicts of personal racism.
Instructor: Frederick Preston

H591E CREATIVE AND EXPRESSIVE THERAPIES

4-6:30 p.m., Enrollment 20, Mark's Meadow Gym

See: Special Education, Tuesday
Instructor: R.D. Jackson

H622 LEADERSHIP IN EDUCATION OF THE SELF

7-10 p.m. plus planning hours by arrangement, Tuesday and Thursday, Enrollment 10, Location to be announced, 4 credits

Training to lead colloquia and other short experiences in basic Education of the Self course techniques. Experiences in designing, planning, executing humanistic education strategies.
Prerequisite: Educ H522 The Education of the Self with instructor
Instructor: Sidney Simon

H653 HELPING ADOLESCENTS COPE WITH THEIR PROBLEMS

7-9:30 p.m., Enrollment 25, Hills South, Room 367

See: Counseling, Tuesday
Instructor: Jeffrey Eiseman

Wednesday H754 ADVANCED PRACTICUM IN SCHOOL COUNSELING

4-6:30 p.m., Enrollment 10, Hills South, Room 367

See: Counseling, Wednesday
Instructor: Jack Wideman

Thursday H522 THE EDUCATION OF THE SELF

7-10 p.m., Tuesday and Thursday (total: 16 sessions), Enrollment 30, Location to be announced

See: Humanistic Education, Tuesday
Instructor: Sidney Simon

H590K ALCOHOL AND ABUSE

7-9:30 p.m., Enrollment 30, Hills South, Room 367, 4 credits

See: Counseling, Thursday
Instructor: David Day

H591G SOCIAL WORK AND THE LAW

7-9:30 p.m., Enrollment 16, Hills South, Room 483

Follow-up to Juvenile and the Law course. Some human service related law problems in the Juvenile Justice field. Topics include: Chins, C & P, Adoptions, Welfare Law, Evidence, Confidentiality.
Priority: juvenile justice majors
Prerequisite: H590E Juvenile and the Law
Instructor: Robert Winston

H622 LEADERSHIP IN EDUCATION OF THE SELF

7-10 p.m. plus planning hours by arrangement, Tuesday and Thursday, Enrollment 10, Location to be announced, 4 credits

See: Humanistic Education, Tuesday
Instructor: Sidney Simon

I590X THE ADOLESCENT EXPERIENCE

3:35-6:05 p.m., Enrollment 20, School of Education, Room 128

How social context and developmental factors affect the way that adolescents respond to schooling. Recent literature dealing with experiences of growing up in a multi-ethnic society.
Instructor: Judithe Speidel

I590Z INTRODUCTION TO BEHAVIORAL ANALYSIS IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 16, School of Education, Room 219

See: International & Multicultural Education, Thursday
Instructor: Gloria deGuevara

P751 INDIVIDUAL ALIENATION AND CONTEMPORARY HIGHER EDUCATION

5-7:30 p.m., Enrollment 20, Off-campus

Analysis based on interdisciplinary readings on student alienation in contemporary institutions of higher education. Open to community and state college personnel only.
Instructor: Jack Hruska

P790T MYTH UNDERSTANDING AND HIGHER EDUCATION

4-6:30 p.m., Enrollment 12, Hills South, Room 149

See: Curriculum & Instruction, Thursday
Instructors: Earl Seidman, David Schuman

International & Multicultural

I590Q SPECIAL PROBLEMS IN EDUCATION: WORKSHOP ON EDUCATION AND INSTITUTIONAL RACISM

October 13, 7-11 p.m.
October 14, 9 a.m.-10 p.m.
October 15, 9 a.m.-5 p.m.
Enrollment 50, School of Education, Room 222, 2 credits

Exercises for classroom or workshop. Developing understanding of racism and counteracting racist behaviors. Readings and group discussions on development of consciousness and stages of growing awareness.
Instructor: Barbara Love

Monday

I590W RESEARCH IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 219

See: Bilingual Bicultural & E.S.L., Monday
Instructor: Gloria deGuevara

Tuesday

H590A RACISM: A CURRICULUM FOR TRAINERS AND COUNSELORS

4-6:30 p.m., Enrollment 16, Hills South, Room 373

See: Humanistic Education, Tuesday
Instructor: Frederick Preston

I591G FUNDAMENTALS OF BILINGUAL BICULTURAL EDUCATION

4-6:30 p.m., Enrollment 20, School of Education, Room 228

See: Bilingual Bicultural & E.S.L., Monday
Instructor: Luis Fuentes

P590D CURRICULAR ISSUES, METHODS AND MATERIALS IN MULTICULTURAL EDUCATION

4-6:30 p.m., Enrollment 20, Hills South, Room 267

New concepts in curriculum development appropriate for the multicultural approach to teaching. Review of existing multicultural curriculum resources. Innovative non-prescriptive approaches, such as Freire's dialogical method. Techniques for evaluation.
Prerequisite: Educ 677 Introduction to Multicultural Education
Instructor: Bob Suzuki

Wednesday

*490A ASPECTS OF PUERTO RICAN CULTURE FOR BILINGUAL EDUCATORS

6-8:30 p.m., Enrollment 25, School of Education, Room 22

See: Bilingual Bicultural & E.S.L., Wednesday
Instructor: Miguel Rivera

*Although for undergraduate credit only, may be applied toward certification in Bilingual Education.

I590O METHODS IN TEACHING ENGLISH AS A SECOND LANGUAGE TO ADOLESCENTS AND ADULTS

6:30-9 p.m., Enrollment 15, School of Education, Room 219

See: Bilingual Bicultural & E.S.L., Wednesday
Instructor: Luis Fuentes

I793N SEMINAR: ISSUES IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 21C

See: Bilingual Bicultural & E.S.L., Wednesday
Instructor: Luis Fuentes

Thursday I590Z INTRODUCTION TO BEHAVIORAL ANALYSIS IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 16, School of Education, Room 219

See: Bilingual Bicultural & E.S.L., Thursday
Instructors: Gloria deGuevara, Carmen Rodríguez

I591A SEMINAR IN APPLICATIONS OF COMMUNITY PARTICIPATION TO BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 22

See: Bilingual Bicultural & E.S.L., Thursday
Instructors: Luis Fuentes, Juan Rosario

Media

Monday I537 MEDIA PRODUCTION SURVEY

4-6:30 p.m., Enrollment 24, School of Education, Room 22A

Preparation of slides, graphics, recordings, and still and motion pictures for use in an educational program. Designed for teachers, trainees, and specialists.
Instructor: Reginald Damerell

Tuesday I545 FILMMAKING FOR THE CLASSROOM TEACHER

4-6:30 p.m., Enrollment 15, School of Education, Room 21B

Creative and practical use of filmmaking in a wide variety of educational settings; relevance to particular subject matter areas; interdisciplinary applications.
Instructor: Liane Brandon

I627 PHOTOGRAPHY IN EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 22A

Theory and practice of taking and processing photographs for use in educational activities.
Instructor: Patrick Sullivan

Wednesday I539 USING AND UNDERSTANDING FILM IN EDUCATION

4-6:30 p.m., Enrollment 20, School of Education, Room 21A

Use of creative and stimulating films in educational settings. Techniques used by filmmakers. Methods for structuring film discussions.
Instructor: Liane Brandon

Research & Evaluation

Monday

H591F SOCIAL COMPETENCY: A NEW APPROACH TO EVALUATION IN EARLY CHILDHOOD EDUCATION

7-9:30 p.m., Enrollment 20, Hills South, Room 467

See: Early Childhood, Monday
Instructor: Ernest Washington

I590W RESEARCH METHODS IN BILINGUAL EDUCATION

4-6:30 p.m., Enrollment 15, School of Education, Room 219

See: Bilingual Bicultural & E.S.L., Monday
Instructor: Gloria deGuevara

I871 DESIGN AND EVALUATION OF TEACHER EDUCATION PROGRAMS

4-6:30 p.m., Enrollment 20, School of Education, Room 21A

Theories for program designs, rationales, evaluation, selection procedures, advising, staffing. Alternative pre and inservice programs provide case material.
Instructor: Horace Reed

P558 EDUCATIONAL STATISTICS LABORATORY

7-10:30 p.m., Enrollment 15, Hills South, Room 267

Use of a major computer statistical package in both the batch and time sharing modes. Actual data analyzed and results interpreted.
Prerequisite: some knowledge of statistics
Instructor: Ernest Anderson

P690N INTRODUCTION TO METHODOLOGY

4-6:30 p.m., Enrollment 25, Hills South, Room 267

New methodology which defines vague or unclear expressions in terms of unambiguous attributes. Introduction to need analysis, evaluation, decision making, general welfare, knowledge generation, and dissemination methodologies.
Instructor: Thomas Hutchinson

P690T MANAGEMENT SYSTEMS

4-6:30 p.m., Enrollment 15, Location to be announced

See: Administration, Monday
Instructor: Ernest Anderson

P764 INSTITUTIONAL RESEARCH AND PROGRAM DEVELOPMENT IN POST-SECONDARY EDUCATION

4-6:30 p.m., Enrollment 18, Hills North, Room 483

Institutional research in the context of application to a specific problem; focus on technical, ethical, and political considerations in providing information for internal programmatic decision making.
Instructor: William Lauroesch

Tuesday H705 HUMAN APPRAISAL AND EVALUATION

4:30-7 p.m., Enrollment 30, Hills South, Room 483

Analysis of statistical procedures; review of achievement, aptitude, and interest tests and their interpretation, selection, and administration; case-study procedures; ethical considerations; problems in human assessment.
Prerequisite: permission of instructor
Instructor: Ena Nuttall

I690S URBAN FIELD RESEARCH IN CURRICULUM: INQUIRY AND EVALUATION

6:30-9 p.m., Enrollment 20, School of Education, Room 222

See: Urban Education, Wednesday
Instructor: Byrd Jones

I740 MICRO-TEACHING: DEVELOPMENT AND IMPLEMENTATION

4-6:30 p.m., Enrollment 16, School of Education, Room 21A

The microteaching concept. Working with teachers and school personnel (pre and inservice) to improve instruction. Utilizes simulation and videotape feedback to analyze instructional techniques.
Instructor: Robert Miltz

P532 PRINCIPLES OF EDUCATIONAL AND PSYCHOLOGICAL TESTING

4-6:30 p.m., Enrollment 25, Location to be announced

Basic principles of measurement. Descriptive statistics, reliability, validity, principles of test construction, item analysis, review of standardized tests.
Instructor: Ronald Hambleton

P790L THE DEVELOPMENT OF METHODOLOGIES IN THE SOCIAL SCIENCES

4-6:30 p.m., Enrollment 20, Hills North, Room 423

Introduction to metamethodology, to develop methods to solve any problem for which there is a desirable and definable purpose. Application of metamethodology to specific problem.
Instructor: Thomas Hutchinson

Wednesday P634 EDUCATIONAL KNOWLEDGE DIFFUSION AND UTILIZATION

4-6:30 p.m., Enrollment 15, Hills North, Room 423

Two aspects of change: diffusion of knowledge and its utilization in practice. Independent study and field internship possible during second semester.
Instructor: William Wolf

Thursday I791E SEMINAR IN COMPUTERS FOR INSTRUCTIONAL EFFECTIVENESS

7:45-10:15 p.m., Enrollment 10, School of Education, L-shaped room

Forum for sharing and clarifying ideas for research and development, especially topics for potential dissertations. Includes artificial intelligence applications in education, programming languages as frameworks for learning, mathematics teacher training, computer literacy, philisophy of educational computing.
Prerequisites: Educ I517 Introduction to Computer Use in Teaching, Educ I770 Instructional Applications of Computers and permission of instructor
Instructors: Portia Elliot, Howard Peelle

P506 OVERVIEW OF EVALUATION

3:30-8:30 p.m., every other Thursday, Enrollment 20, Worcester, Mass.

Evaluation and higher education. Philosophies of evaluation, variables employed in the various models, generation of new evaluation designs.
Open to teachers and administrators in higher education.
Instructor: Mary Quilling

P603 INTRODUCTION TO RESEARCH FOR NON-RESEARCH MAJORS

4-6:30 p.m., Enrollment 20, Hills South, Room 267

Purposes of research; different kinds of research (i.e., historical, survey, and experimental models); specific research methodology drawn from statistics, experimental design, measurement and evaluation.
Instructor: William Wolf

Friday P527 INTRODUCTION TO THE USES OF COMPUTERS IN EDUCATION

4-6:30 p.m., Enrollment 20, at Mt. Wachusetts, Gardner, Mass.

Application of computer-related technology to schools, including instruction, research, administration, the systems approach and general societal impact of the computer.
Instructor: Ernest Anderson

Special Education

Monday H792A COMMUNITY MENTAL HEALTH ADMINISTRATION

4-6:30 p.m., Enrollment 20, Hills South, Room 467

See: Administration, Monday
Instructor: Gene Orro

H698P PRACTICUM: COMMUNITY TREATMENT OF SEVERELY AND PROFOUNDLY HANDICAPPED PERSONS

4-6:30 p.m., Enrollment 15, Location to be announced

Structured practicum experiences in a variety of community settings as alternatives to traditional institutional settings.
Priority: special education majors
Instructor: R.D. Jackson

Tuesday H590Z EDUCATION OF THE MILDLY AND MODERATELY HANDICAPPED

4-6:30 p.m., Enrollment 20, Location to be announced

Origin of mild and moderate handicaps. Literature related to generic area of special education. Effective educational intervention strategies. Chapter 766 and the CORE evaluation process.
Instructor: Roger Frant

H591E CREATIVE AND EXPRESSIVE THERAPIES

4-6:30 p.m., Enrollment 20, Mark's Meadow Gym

Therapeutic intervention systems that may be used as adjunct or in lieu of traditional therapies, Expressive acts as therapeutic intervention strategies. Emphasis on movement therapy.
Instructor: R.D. Jackson

H790T DEINSTITUTIONALIZATION: ISSUES & PROBLEMS IN THE DESIGN & MANAGEMENT OF PATIENT RE-ENTRY SYSTEMS

4-6:30 p.m., Enrollment 20, Hills South, Room 455

See: Administration, Tuesday
Instructor: Gene Orro

I572 TEACHING READING TO SPECIAL POPULATIONS K-12

4-6:30 p.m., Enrollment 20, On-site at Ft. River School

See: Curriculum & Instruction, Tuesday
Instructor: Masha Rudman

Thursday H590K ALCOHOL AND ABUSE

7-9:30 p.m., Enrollment 30, Hills South, Room 367, 4 credits

See: Counseling, Thursday
Instructor: David Day

H591D THE EDUCATION OF THE SEVERELY HANDICAPPED

4-6:30 p.m., Enrollment 40, Location to be announced

Needs of the severely and profoundly handicapped in the planning of effective service programs. Professional problems and methodologies considered for their potential contribution to the lives of handicapped persons.
Instructor: Roger Frant

Urban Education

I590Q SPECIAL PROBLEMS IN EDUCATION: WORKSHOP ON EDUCATION AND INSTITUTIONAL RACISM

October 13, 7-11 p.m.
October 14, 9 a.m.-10 p.m.
October 15, 9 a.m.-5 p.m.
Enrollment 50, School of Education, Room 222, 2 credits

See: International & Multicultural Education
Instructor: Barbara Love

Tuesday I568 CURRICULUM DEVELOPMENT IN URBAN EDUCATION

6:30-9 p.m., Enrollment 20, School of Education, Room 222

New and innovative curricula for urban schools. Investigation of curriculum developments relevant to inner city environments. A post-urban internship consisting of lectures, seminars, and field experience.
Instructor: Atron Gentry

Wednesday I593A EDUCATION FOR COMMUNITY DEVELOPMENT AND ORGANIZATION

4-6:30 p.m., Enrollment 25, School of Education, Room 128

See: Foundations, Wednesday
Instructor: Horace Reed

I690S URBAN FIELD RESEARCH IN CURRICULUM: INQUIRY AND EVALUATION

6:30-9 p.m., Enrollment 20, School of Education, Room 222

Access to field methodologies (theory and practice). Means for the analysis and employments of such findings in urban educational inquiry and program evaluation.
Prerequisite: course in curriculum development, theory or evaluation
Instructor: Byrd Jones

Vocational & Occupational

Monday P749 CURRENT CONCEPTS, TRENDS, AND PRACTICES IN VOCATIONAL-TECHNICAL EDUCATION

3:35-6:35 p.m., Enrollment 15, Hills North, Room 423

Concepts resulting from a critical evaluation of the research and legislation involved in the development of vocational and technical education programs.
Instructor: Kenneth Ertel

Tuesday P791F SEMINAR IN EDUCATION: RESEARCH IN OCCUPATIONAL EDUCATION

3:30-6:30 p.m., Enrollment 15, School of Business Administration, Room 202

The design of research in vocational education. Identification of specialty topic areas, review of research associated with those areas, development of research methodologies. Final product is a dissertation proposal.
Prerequisite: must be nearing or have completed comprehensive exam and in process of preparing a dissertation
Instructor: Kenneth Ertel

Wednesday P690P HISTORY AND PHILOSOPHY OF VOCATIONAL EDUCATION

7-10 p.m., Enrollment 15, Hills North, Room 423

Historical development of vocational education 1800-1920, legislation and policy implementations 1800-1920, expansion of vocational education 1920-1976, career education 1971-1977.
Instructor: Jack Hruska

Administration

OFFICE OF THE DEAN

Mario D. Fantini, *Dean*	545-0233
Richard J. Clark, Jr., *Assistant Dean Program Planning and Development*	545-1574
Clement A. Seldin, *Inservice Coordinator*	545-1575
Administrative Affairs Office	545-0956

OFFICE FOR ACADEMIC AFFAIRS

Grace J. Craig, *Acting Associate Dean**	545-0236

OFFICE FOR STUDENT AFFAIRS

Norma Jean Anderson, *Assistant Dean Student Affairs*	545-0958
Norvell Jackson, *Graduate Advisor*	545-2648
Michael Schwartz, *Undergraduate Advisor*	545-2701

*on Sabbatical Fall Semester 1978

Graduate Degree Programs

The School of Education is a comprehensive professional school providing programs of specialized preparation in diverse areas of the field of Education. These programs may lead to the Master of Education degree (M.Ed.), the Doctor of Education degree (Ed.D.), or a Certificate of Advanced Graduate Study (C.A.G.S.). For each degree program, a number of specialty areas or program concentrations are available.

Graduate students, under the supervision of their advisor(s), put together individualized combinations of courses and experiences within and across concentration areas. These programs of study are carried out in consonance with certification guidelines, professional association recommendations, sub-program requirements, School requirements and individual goals.

The general academic program in the School of Education is characterized by a diversity of learning and teaching resources, alternative educational paths, and an emphasis on active involvement in the field. For more detailed information on graduate study at the School of Education, please contact the Office for Student Affairs at 545-2648 or your area of interest:

c/o The School of Education
University of Massachusetts
Amherst, MA 01003

INSERVICE PROGRAMS

The University of Massachusetts School of Education conducts inservice education programs with teachers, specialists, and administrators throughout the Commonwealth. School of Education inservice programs involve personnel in Western Massachusetts and in satellite centers in Boston, Worcester, Falmouth, and Wellesley. All inservice degree programs strive to meet community educational needs in a concentrated effort to facilitate staff development and improve the quality of public school education.

It is important to note that enrollment in inservice degree programs, unlike non-degree participation, requires offical application to and acceptance by the University Graduate School and a specific program within the School of Education.

School personnel from the following school systems and communities are currently involved in University of Massachusetts Inservice Programs:

Amherst	New Salem
Boston	Northfield
Cambridge	Northampton
Easthampton	Pelham
Erving	Pittsfield
Falmouth	Shutesbury
Gateway	South Hadley
Greenfield	Springfield
Groton	Sturbridge
Hadley	Wellesley
Holyoke	Wendell
Lenox	Westfield

Organization

DIVISION OF HUMAN SERVICES AND APPLIED BEHAVIORAL SCIENCES
Chairperson: Douglas R. Forsyth

Addresses individual growth and develoment in educational settings and human service agencies. The general categories of psychology, human development, counseling, and human relations skills serve as a base for the study of human interaction, group dynamics and organizational factors influencing individual learning.

Graduate Study

Areas of Concentration	Inservice Programs
ANISA	ANISA Teacher Education Program
Counseling/Mental Health	Career Development Program
Early Childhood Education	Part-time Master's Degree Program in Counseling
Psychological Ed/Juvenile Justice	Prescriptive Counselor Specialists
Special Education	CAGS Program in Counseling
	Inservice Diagnostic Prescriptive Teacher Program
	Early Childhood Education/Special Education
	Early Childhood Education Inservice Master's Program
	Optional Learning Environments

DIVISION OF INSTRUCTIONAL LEADERSHIP
Chairperson: Byrd Jones

Stresses research, development and evaluation of curriculum programs and teaching methodologies. Instructional effectiveness, curriculum innovation, the uses of educational technology and alternative approaches to subject matters are emphasized.

Graduate Study

Areas of Concentration	Inservice Programs
Bilingual-Bicultural Education	Bilingual-Bicultural Education
Instructional Applications of Computers	Boston English High School Program
Instructional Effectiveness	Center for Urban Education - Experienced Learner Program
Integrated Day	Education for Community Service
Media	English Education for a Pluralistic Society
Reading	Integrated Day Inservice Growth Program
Teacher Education	Media Specialists Inservice Master's Certification Program
Urban Education	Museum Education
	Reading Inservice Degree Program
	Study of Unified Science Education
	Inservice Academic Disciplines Program

DIVISION OF EDUCATIONAL POLICY, RESEARCH AND ADMINISTRATION
Chairperson: George Urch

Provides a theoretical perspective for educational systems and their effective application to policy and decision-making. Educational law, history, philosophy, research methodologies and administrative theory and practice are considered and systematically related to policy issues and administration.

Graduate Study

Areas of Concentration	Inservice Programs
Administration	Cooperative Education Inservice Graduate Program
Foundations	Education for a Changing World
Future Studies	Institute Fellows Program
Higher Education	Title IV Inservice Training Program
International Education	
Occupational Education	
Research	

Certification Programs

SCHOOL GUIDANCE COUNSELOR
Ronald Fredrickson, 458 Hills South, 545-3628

SCHOOL GUIDANCE DIRECTOR
Ronald Fredrickson, 458 Hills South, 545-3628

GENERAL SUPERVISOR
Robert Miltz, 6 School of Education, 545-1587

SPECIAL SUBJECT SUPERVISOR
Robert Miltz, 6 School of Education, 545-1587

ELEMENTARY SCHOOL PRINCIPAL
Kenneth Washington, 157 Hills South, 545-2705

SECONDARY SCHOOL PRINCIPAL
Kenneth Washington, 157 Hills South, 545-2705

SUPERINTENDENT, ASSISTANT SUPERINTENDENT
Arthur Eve, 157 Middlesex House, 545-0001

AUDIO VISUAL MEDIA SPECIALIST
Reginald Damerell, 4 School of Education, 545-3123

SCHOOL PSYCHOLOGIST
Ena Nuttall, 450 Hills South, 545-1926

TEACHER, ELEMENTARY AND SECONDARY
Teacher Education Advising Office, 125-B, School of Education, 545-2701

BILINGUAL BICULTURAL
Luis Fuentes and Gloria deGuevara
223-B School of Education, 545-1506

Textbooks

The Textbook Annex, located near the Campus Center Garage, has a major supply of textbooks for inservice courses listed in this booklet. The Annex is organized both alphabetically, by department, and numerically, by course number within each specific department.

The University Store, located on the first floor of the Campus Center, also stocks education texts and course materials.

The University Store and Textbook Annex hours for Fall are listed below:

		Store	Annex
September	5	9 a.m. - 9 p.m.	9 a.m. - 5 p.m.
	6	9 a.m. - 9 p.m.	9 a.m. - 9 p.m.
	7	9 a.m. - 9 p.m.	9 a.m. - 9 p.m.
	8	9 a.m. - 5 p.m.	9 a.m. - 5 p.m.
	9	10 a.m. - 4 p.m.	10 a.m. - 4 p.m.
	11	9 a.m. - 5 p.m.	9 a.m. - 9 p.m.

Closed Sunday

Regular hours resume after September 11

9 a.m. - 5 p.m. 9 a.m. - 4:30 p.m.

11 a.m. - 4 p.m.
(Saturday)

Main Library

Monday-Thursday	8 a.m. to midnight
Friday	8 a.m. to 10 p.m.
Saturday	10 a.m. to 6 p.m.
Sunday	10 a.m. to midnight

For information phone: 545-0150

Parking

In order to park a vehicle on campus between the hours of 7 a.m. and 6 p.m., students ahd visitors have three options: 1) use metered spaces convenient to the desired location, 2) park in the Campus Center Garage on a fee-per-hour basis, or 3) purchase a parking decal from the University Parking Office, Room 1, Munson Hall.

After 6 p.m. all metered spaces and parking lots are open to all vehicles free of charge.

Services & Facilities

OFFICE FOR STUDENT AFFAIRS
School of Education 125 545-2648

FINE ARTS BOX OFFICE
Student Union 545-0400

I.D. CARDS
169 Whitmore 545-0197

VETERANS' AFFAIRS OFFICE
Arthur Hilson, Director, Whitmore 545-0019

UNIVERSITY COMPUTER CENTER
Graduate Research Center, Room A202 545-2744

BURSAR'S OFFICE (FEES & BILLS)
Room 215, Whitmore 545-2368

GRADUATE TRANSCRIPT OFFICE
A249, Graduate Research Center Building
The first two transcripts are at no charge.
Thereafter, there is a $2.50 fee for each transcript.

TELEPHONE INFORMATION
University Switchboard 545-0111
Student Resident Information 545-1515
Campus Center Information 545-0012

XEROXING
School of Education
Whitmore
Engineering
Herter Hall
University Library
Thompson Hall
Bartlett Hall
Physical Science Library
School of Business Administration

GRADUATE RECORDS OFFICE
A245, Graduate Research Center Building 545-0024

School of Education Faculty

Mario D. Fantini, Professor and Dean of the School of Education, B.A., Temple; M.A.; Ed.D. Harvard.

Grace J. Craig, Professor and Acting Associate Dean for Academic Affair B.A., Massachusetts, 1959; M.S., 1962; Ph.D. 1967

Norma Jean Anderson, Professor and Assistant Dean for Student Affairs, B.S., Illinois, 1956; M.Ed., 1961; Ed.D., 1966.

Richard J. Clark, Jr., Associate Professor and Assistant Dean for Program Planning and Development, B.A., Amherst, 1960; M.Ed., Harvard, 196 Ed.D., Stanford, 1969.

Linda Abrams, Lecturer, B.A., Syracuse; M.A., Northwestern.

Dwight W. Allen, Professor, B.A., Stanford, 1953; M.A., 1957; Ed.D. 195

Alfred S. Alschuler, Professor, B.A., Amherst, 1961; M.A., Harvard, 196 Ph.D., 1967.

G. Ernest Anderson, Jr., Professor, B.A., Amherst, 1950; M.A.T., Harvar 1955; Ed.D., 1965.

Albert S. Anthony, Professor, B.S., Trinity, 1937; M.A.T., Harvard, 194 Ed.D., 1955.

Kenneth H. Blanchard, Professor, B.A., Cornell, 1961; M.A., Colgate, 1963; Ph.D., Cornell, 1966.

Linda Sue Blane, Assistant Professor, B.A., Miami, 1963; M.S., 1965; Ed.D., Florida, 1967.

Liane Brandon, Assistant Professor, B.A., Boston University, 1962; M.Ed 1967.

R. Mason Bunker, Associate Professor, B.S., Farmington State, 1959; M.Ed., Maine 1965; Ed.D., Illinois, 1970.

Emma Capelluzzo, Professor, B.S., Boston, 1955; M.Ed., Arizona, 1959; Ed.D., 1965.

Donald Carew, Professor, B.A., Ohio, 1955; M.A., 1956; Ed.D., Florida, 1962.

Magdalene Carney, Lecturer, B.A., Tennessee, 1953; M.A., George Peabody 1967; Ed.D., Massachusetts, 1977.

Margaret Cline, Lecturer, B.A., Cornell, 1953; M.A., Wells College, 195

Roberta A. Collard, Associate Professor, B.S., Texas, 1940; Ph.D., Chicago, 1962.

Evan Coppersmith, Assistant Professor, B.A., Roosevelt, 1964; M.S., California State, 1974.

Reginald G. Damerell, Associate Professor, B.A., Columbia College, 194

David E. Day, Associate Professor, B.S., New York at Brockport, 1952; M.S., 1958; Ed.D., Wayne State, 1962.

Gloria deGuevara, Assistant Professor, B.A., University of Puerto Rico, 1964; M.Ed., 1969; Ed.D., Massachusetts, 1977.

Larry Dye, Associate Professor, M.Ed., Massachusetts, 1971; Ed.D., 197

S. Philip Eddy, Associate Professor, B.A., Nebraska State at Wayne, 1951; M.A., Columbia, 1956.

Carolyn Edwards, Assistant Professor, B.A., Radcliffe, 1969; Ed.D., Harvard Grad. School of Education, 1974.

Jeffrey W. Eiseman, Associate Professor, B.A., Stanford, 1962; M.A., Michigan, 1964; Ph.D., 1971.

Portia Elliott, Assistant Professor, B.A., Fisk, 1969; M.A., Michigan, 1970; Ed.D., Massachusetts, 1973.

Kenneth A. Ertel, Professor, B.S., Minnesota, 1953; M.Ed., Eastern Washington College of Education, 1960; Ed.D., Washington State, 1967.

David R. Evans, Associate Professor, B.S., Oberlin, 1959; M.S., Illinois, 1961; Ph.D., Stanford, 1969.

Arthur W. Eve, Professor, B.Ed., Chicago Teachers' College, 1957; M.A., Chicago, 1961; Ph.D., 1967.

William V. Fanslow, Associate Professor, A.B., Chapman, 1959; M.A., Stanford, 1961; Ph.D., 1967.

Louis Fischer, Professor, B.A., Stanford, 1949; L.L.B., 1951; M.A., 1954; Ph.D., 1958.

George E. Forman, Associate Professor, B.S., Louisiana State, 1963; Ph.D., Alabama, 1967.

Douglas R. Forsyth, Associate Professor, B.A., Bucknell, 1960; M.A., 1962; Ph.D., Colorado State, 1968.

Richard E. Frank, Visiting Assistant Professor, B.A., North Adams State, 1967; Ed.D., Massachusetts, 1973.

Roger D. Frant, Assistant Professor, B.S., C.W. Post, 1967; M.A., George Washington, 1971; Ph.D., Wisconsin, 1976.

Ronald H. Fredrickson, Professor, B.S., Kansas State Teachers', 1953; M.S., 1959; Ph.D., 1963.

Luis Fuentes, Lecturer, B.S., Georgia Teachers' College, 1953; M.Ed., Mercer, 1959.

Atron Gentry, Professor, B.A., California State at Los Angeles, 1966; Ed.D., Massachusetts, 1970.

Judith Gourley, Assistant Professor, B.A., Northern Illinois, 1965; M.A., Cornell, 1971; Ph.D., 1974.

Michael Greenebaum, Assistant Professor and Principal, Mark's Meadow School, B.A., Harvard, 1955; M.A.T., 1956; Ed.D., Massachusetts, 1972.

Donald E. Hall, Associate Professor, B.S., Gorham Teachers', 1954; M.Ed., 1955; Ed.D., Boston, 1965.

Ronald K. Hambleton, Associate Professor, B.A., Waterloo, 1966; M.A., Toronto, 1967; Ph.D., 1969.

Samuel Henry, Lecturer, B.S., District of Columbia Teachers', 1969; M.A., 1974.

Jack Hruska, Associate Professor, B.A., Michigan State, 1956; M.A., Colorado State, 1960; Ph.D., Michigan State, 1969.

Thomas Hutchinson, Associate Professor, B.A., Rutgers, 1959; M.Ed., Boston University, 1961; Ed.D., Harvard, 1969.

Allen E. Ivey, Professor, B.A., Stanford, 1955; Ed.D., Harvard, 1959.

Bailey Jackson, Assistant Professor, M.Ed., Massachusetts, 1972; Ed.D., 1976.

R.D. Jackson, Assistant Professor, B.S., Alabama, A. & M., 1967; M.Ed., Virginia, 1970; Ed.D., George Washington, 1976.

Byrd L. Jones, Professor, B.A., Williams, 1960; Ph.D., Yale, 1966.

Daniel D. Jordan, Professor, B.Mus., Wyoming, 1953; B.A., Oxford, 1956; M.A., 1964; Ph.D., Chicago, 1964.

Alfred L. Karlson, Assistant Professor, B.A., Antioch, 1964; M.Ed., Tufts, 1966; Ph.D., Chicago, 1971.

David Kinsey, Associate Professor, B.A., Oberlin, 1954; M.A., Yale, 1957; Ph.D., Harvard, 1965.

Richard D. Konicek, Professor, B.S., Illinois, 1954; M.S., 1963; Ed.D., Columbia, 1967.

William G. Kornegay, Professor, B.A., North Carolina, 1949; M.Ed., 1957; Ph.D., 1959.

William Lauroesch, Associate Professor, B.A., Colgate, 1942; M.A., Syracuse, 1947; Ed.D., New York, 1956.

Lawrence Locke, Professor of Physical Education and of Education, B.S., 1952; M.Ed., 1953; Springfield College; Ph.D., Stanford, 1961.

Linda Lockwood, Associate Professor of Environmental Sciences and of Education, B.S., Columbia, 1960; M.A., 1961; M.A., 1965; Ph.D., 1969.

Barbara Love, Assistant Professor, B.A., Arkansas State A.M.& N., 1965; M.A., Arkansas, 1967; Ed.D., Massachusetts, 1972.

William J. Masalski, Associate Professor, B.S., Central Connecticut State, 1956; M.A., Fairfield, 1960; Ed.D., Massachusetts, 1970.

Anthony P. Mattaliano, Visiting Assistant Professor, B.S., N.Y.U., 1950; M.A., 1951; Ed.D., Massachusetts, 1977.

Lynne Miller, Assistant Professor, B.A., Pennsylvania, 1967; M.A.T., Harvard, 1969; Ed.D., Massachusetts, 1975.

Robert Miltz, Assistant Professor, B.A., Stanford, 1964; M.A., 1965; Ed.D., 1971.

Roberta Navon, Lecturer, B.A., City University of New York, 1948.

Ena Nuttall, Assistant Professor, C.A., Puerto Rico, 1958; M.A., Radcliffe, 1960; M.Ed., Boston University, 1965; Ed.D., 1969.

Ellis G. Olim, Professor, B.A., Harvard, 1931; M.A., Roosevelt, 1960; Ph.D., Chicago, 1965.

Gene Orro, Associate Professor, B.S., DePaul, 1961; Ph.D., California School of Professional Psychology, 1973.

Howard A. Peelle, Associate Professor, B.S., Swarthmore, 1965; Ed.D., Massachusetts, 1971.

Mary Quilling, Associate Professor, B.A., Mount Holyoke, 1958; M.A., Wisconsin, 1965; Ph.D., 1973.

Patricia Ramsey, Lecturer, B.A., Middlebury, 1973; M.A., San Francisco State, 1973.

Horace B. Reed, Professor, B.A., Antioch, 1943; M.S., Putney Graduate School of Teacher Education, 1953; Ed.D., Harvard, 1959.

Sheryl Reichmann, Associate Professor, B.A., Mankato State, 1970; M.A., Cincinnati, 1972; Ph.D., 1974.

Masha Rudman, Associate Professor, B.A., Hunter, 1953; M.S., 1956; Ed.D. Massachusetts, 1970.

Anna Russell, Lecturer, M.Ed., Massachusetts, 1976.

David M. Schimmel, Professor, B.A., Duke, 1955; J.D., Yale, 1958; B.H.L. Hebrew Union, 1967.

Klaus Schultz, Associate Professor, A.B., California at Berkeley, 1957; Ph.D., 1964.

David F. Schuman, Associate Professor, B.A., Tulsa, 1964; M.A., California at Berkeley, 1966; Ph.D., 1971.

Michael G. Schwartz, Lecturer, B.A., Wisconsin at Madison, 1963; M.A.T. Massachusetts, 1971; Ed.D., 1974.

Harvey B. Scribner, Professor, B.A., Farmington State Teachers', 1946; M.A., Maine, 1951; Ed.D., Boston, 1960.

Earl Seidman, Professor, B.A., Oberlin, 1959; M.A.T., Harvard, 1960; Ph.D., Stanford, 1967.

Clement A. Seldin, Lecturer/Staff Assistant, B.A., Adelphi, 1970; Ed.M., Boston University; Ed.D., Massachusetts, 1976.

Sidney B. Simon, Professor, B.A., Pennsylvania State, 1949; M.Ed., 1952; Ed.D., New York, 1958.

Rudine Sims, Associate Professor, B.S., West Chester State, 1959; M.S., Pennsylvania, 1964; Ed.D., Wayne State, 1972.

Robert Sinclair, Associate Professor, B.S., Miami, 1960; M.A., 1961; Ed.D., California at Los Angeles, 1968.

Judithe D. Speidel, Associate Professor, B.A., Smith, 1944; M.A., San Jose State, 1961; M.A., Stanford, 1962; Ph.D., 1969.

Donald Streets, Assistant Professor, B.S., Indiana, 1956; M.A., Notre Dame; Ed.D., Massachusetts, 1971.

Patrick J. Sullivan, Professor, B.A., Georgetown, 1960; M.A., California at Berkeley, 1962; Ph.D., 1967.

Bob Suzuki, Associate Professor, B.S., California at Berkeley, 1960; M.S., 1962; Ph.D., California Institute of Technology, 1967.

Hariharan Swaminathan, Associate Professor, B.S., Dalhousie, 1965; M.S., Toronto, 1966; M.Ed., 1968; Ph.D., 1971.

Salvatore Tagliareni, Assistant Professor, A.B., New Jersey, 1958; M.S., New York, 1970; Ph.D., California, 1973.

Leverne J. Thelen, Associate Professor, B.S., Nebraska State at Wayne, 1949; M.A., Nebraska, 1956; Ed.D., 1961.

William L. Thuemmel, Associate Professor, B.S., Michigan State, 1958; M.A., 1965; Ph.D., 1970.

Barbara Turner, Associate Professor, B.A., Antioch, 1962; M.A., DePaul, 1965; Ph.D., Chicago, 1969.

Richard O. Ulin, Professor, B.A., Harvard, 1938; M.A., 1942; M.Ed., 1949; Ed.D., 1958.

George Urch, Associate Professor, B.A., Western Michigan, 1953; M.A., 1959; Ph.D., Michigan, 1967.

Peter H. Wagschal, Associate Professor, B.A., Harvard, 1966; M.A., Stanford, 1967; Ed.D., Massachusetts, 1969.

Ernest Washington, Professor, B.A., Minnesota, 1960; M.A., Illinois, 1965; Ph.D., 1968.

Kenneth Washington, Associate Professor, B.A., Michigan State, 1961; M.A., 1967; Ph.D., 1970.

Gerald Weinstein, Professor, B.S., Temple, 1954; M.Ed., 1959.

Robert Wellman, Professor, B.A., Dartmouth, 1954; M.A., Western Reserve, 1959; Ph.D., Ohio State, 1962.

Donald White, Associate Professor, B.A., Emerson, 1960; M.A., St. Louis, 1971; Ph.D., Pittsburgh, 1974.

John W. Wideman, Associate Professor, B.A., Williams, 1950; M.Ed., Harvard, 1956; Ed.D., 1970.

William C. Wolf, Jr., Professor, B.S., Pennsylvania State at Kutztown, 1955; M.Ed., Ohio, 1956; Ph.D., Iowa, 1959.

Robert L. Woodbury, Professor, B.A., Amherst, 1960; M.A., Yale, 1962; Ph.D., 1966.

Raymond Wyman, Professor Emeritus, B.S., Massachusetts, 1937; M.Ed., Boston, 1947; Ed.D., 1956.

The University of Massachusetts at Amherst prohibits discrimination on the basis of race, color, sex, age, religion, national origin or handicap in any aspect of its employment, in the recruitment, admission and treatment of students and in its policies and programs as required by Federal and State laws and regulations. Inquiries concerning these laws and regulations or their application should be addressed to the Office of the Affirmative Action Coordinator, Chancellor's Office, 375 Whitmore Admininstration Building.

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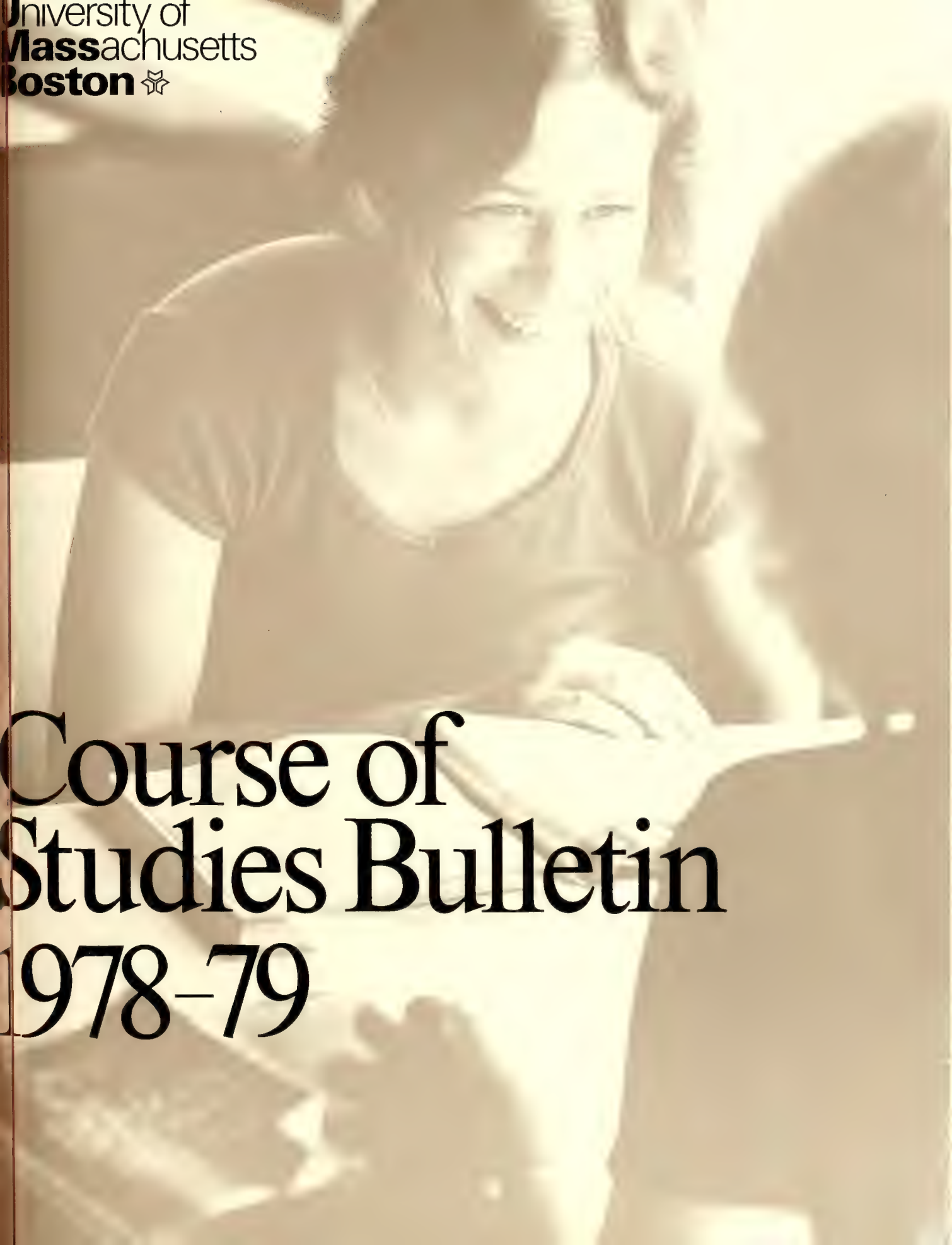

University of
Massachusetts
Boston

Course of Studies Bulletin 1978–79

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The purpose of this bulletin is to provide academic and non-academic information about th University of Massachusetts at Boston to persons who work and study here, to persons who may b interested in applying for admission, and to parents, teachers, counselors and the general publi THIS BULLETIN IS NOT A CONTRACT OR AN OFFER TO MAKE A CONTRACT. Whi every effort has been made to ensure the accuracy of the information in this bulletin, the Universi reserves the right to make changes at any time with respect to course offerings, degree requirement services provided or any other subject addressed in this bulletin. The information in this bulletin provided solely for the convenience of the reader, and the University expressly disclaims a liability which may be otherwise incurred.

Nondiscrimination and Affirmative Action Policy

The University of Massachusetts at Boston does not discriminate against students, faculty, staff, applicants for employment because of sex, ethnic background, race, age, religion, or handicap. T University of Massachusetts at Boston is also fully cognizant of its responsibilities under Title IX the Higher Education Amendments of 1972, of Titles VI and VII of the Civil Rights Act, of § 5 and 504 of the Rehabilitation Act of 1973, and the Equal Pay Act.

Message from the Chancellor

Universities have several characteristics in common, yet each also has a special goal and mission. Like other institutions of higher learning, the University of Massachusetts at Boston seeks to disseminate the learning of the past and to participate in the most current research and thinking; it is devoted to expanding the intellectual horizons of its students and to challenging them to explore the furthest boundaries of knowledge. Like all universities it seeks to provide its students with the understanding of the world in which they live in the context of the past. Ultimately it hopes that it can participate in a process that leads all of its members towards wisdom.

The special mission of the University of Massachusetts at Boston is determined by its history and location. Founded particularly to serve citizens of Massachusetts at a time of expansion in higher education, it was from the beginning urban in outlook and character. The following pages will acquaint you with the programmatic responses of the University to these two goals of continuity of purpose with the past and responsibility to the historical circumstances of the present. I ask that each of you consider seriously the opportunity for personal development offered by the University of Massachusetts at Boston and to share with us our commitment to excellence and service.

Claire Van Ummersen

Claire Van Ummersen

Introduction

The UMass-Boston school day runs from 8:00 a.m. to 10:00 p.m., and its evening "Extended Day" classes are taught by the same faculty that teaches daytime students. Just as the University makes no distinction between day and nighttime student, it enables students to take part-time course loads — and to switch easily from full and part-time and day and evening courses term by term.

More and more of UMass-Boston's students are women, with families, jobs or both. The University operates a fully-certified Child Care Center, with separate toddler and preschool divisions, which means that mothers (and fathers) are relieved of much of the difficulty of arranging for young children while they study. Because many women chose to continue their education after raising children, the University Counseling Center employs a special advisor to work solely with returning women students.

Similarly, the University has a special Office of Veterans' Affairs to provide veterans with academic counseling and to work for them in obtaining government benefits to help pay for their schooling.

Some students either lack traditional college preparation or have been away from school long enough to need help and for them the University offers a battery of services, ranging from intensive training sessions before the first day of college to readily-available tutors for most courses. In some Boston high schools, University staff members conduct college preparatory programs to help interested students prepare for college; an active Office of Admissions visits parents and students throughout metropolitan Boston to discuss the opportunities that UMass-Boston offers.

Because Boston has a truly international population, the University has a program in English as a Second Language to help those who are native speakers of such languages as Spanish, Greek, Chinese, Portuguese, French, German, Japanese and the languages of Africa progress smoothly in the coursework of an American university. UMass-Boston employs a special counselor to serve Spanish-speaking students.

Nor does UMass-Boston believe that a physical handicap should be a barrier to learning. It operates a Disabled Student Center to counsel and assist physically handicapped students in keeping with policies of the Department of Health, Education and Welfare. The Handicapped Center provides reading and instruction services in Braille and sign language, and has a tape library, a Braille library and Braille typewriters. University buildings have all been built or remodelled in the past thirteen years and are totally accessible to people who use wheelchairs.

But even with a favorable location and a full range of support services, any college or university is only as good as the number and quality of its educational programs and the intellectual strength of its teaching staff. While the list of faculty members at the end of this Bulletin shows the range and distinction of training of the teaching staff, it does not indicate its full involvement in research and scholarship in virtually every field of investigation. Nor does it indicate that the University hires its staff not only for dedication to teaching but for an equal dedication to study and research.

A university is comprised of colleges, each one of which has its own perspective on learning and its applications. At UMass-Boston there are three colleges: the College of Arts and Sciences, which focuses on traditional liberal arts disciplines and their applications to careers such as law, medicine and scientific research; the College of Professional Studies, which offers practical, career-oriented training in management, health services administration and engineering; and the College of Public and Community Service, which provides social service-oriented training, particularly to older students with ongoing careers. The College of Public and Community Service is housed in UMass; Boston's original Downtown Campus at 100 Arlington Street; the other two colleges moved four years ago to the new Harbor Campus on Columbia Bay.

Despite the differences in perspective, students at all three colleges at UMass-Boston have a strikingly similar education. All do intensive work leading to competency in basic skills of self-expression and critical thinking. All have a foundation in traditional disciplines. And all complete their education with intensive work in a particular area of study which may lead to a career or graduate education.

And some of that graduate education takes place at UMass-Boston itself, for despite its commitment to undergraduate education, the University has five small, carefully selected graduate programs in biology, chemistry, English, history and mathematics. While the number of graduate students is small, their presence contributes to the spirit of advanced investigation which the undergraduates encounter in their junior and senior years.

A university has a diversity that is not possi ble in a single college. UMass-Boston has 5 areas of undergraduate study, which ar explained in detail later in this bulletin. Th areas of study range from Accounting to Wom en's Studies, from Ancient Greek to Commur ity Advocacy Planning. There are tradition academic disciplines like History and ne "concentrations" that examine a single are from the perspectives of a variety of disc plines, concentrations like those in Religior Latin American Studies, and the Manageme of Information Systems. Some programs, lik Premedical Studies, Community Agency Mar agement and Finance, may lead directly to a vanced professional training or careers.

Many of these programs are conducted in th new facilities of the Harbor Campus — smal intimate classrooms and the finest in researc equipment. The science departments, f example, have both small teaching labs for to 25 students and research labs in which st dents can work with their teachers on full-sca research projects. Biology students can do the experiments on actual electron miscroscope in the University's tropical greenhouse or at several local field stations. Physics studer can study in the University's unusual magneti laboratory or underneath a new astronomic telescope which brings celestial bodies in 5 times closer than normal vision. And UMas Boston students have virtually unlimited acce to a first-order research/computer system.

Being a university gives UMass-Bost the scope for several exceptional program The University library is housed in its o ten-story building and consists of 300,0 books and 3,000 journals, including spec collections for the arts and music and the s ences and a special annex at the College Public and Community Service. The Univer ty's Center for Media Development has vanced production equipment including computer-assisted video editing system multi-track audio studio and a graphic prod tion laboratory. It produces high quality edu tional materials for the university and for co munity and government agencies as well, an now participating in the planning of a serie college curricula in communications.

The Institute for Learning and Teach serves as a bridge between teachers, pare and high school staff to develop the quality education in Boston, particularly in racially culturally-mixed schools. Through the I University faculty members and students w as tutors and classroom assistants and hel develop programs to lessen the gap betw

h school and the university. After the start of t Boston school desegregation program, the l titute focused on the eighteen public schools i District VI, which includes South Boston, olumbia Point and North Dorchester. It has l ped create a parent/teacher resource center d tutoring program and programs to bring art d an increased use of media and audio-visual uipment into the schools.

The John F. Kennedy Presidential Library is ng built on the coastal edge of the UMass- ston Harbor Campus; and when it opens, it l be linked to the University by a series of ucational programs which will allow stu- nts and their teachers to share in its rich ources.

n many respects, UMass-Boston resem- s other universities except for its lack of rmitories. It has a student newspaper, *The ss Media*, and a student operated radio sta- n, WUMB. Students operate a natural foods taurant and sponsor a pub. Movies, concerts d other cultural events are available free or at nimal cost by campus organizations. Last r there were seventy student organizations:

ican Student Union
thropology Club
bic Student Union
nenian Club
Club
Gallery
an American Association
logy Club
mistry Club
istian Fellowship
ss Club
ssics Club
Care Center
ating Club
ma Company
nomics Society
n Series
d and Nutrition Group
nch Club
People's Group
man Club
phic Arts Organization
lenic Club
el
ni
rnational Society
n Historical Society
an Club
ate Club
n American Students' Organization
ture Series
nagement Society
Marxist Study Group
Mass PIRG
Mass Media
Math Club
Music Club
National Student Coalition Against Racism
Norlantic Reef Club
Older Students' Organization
Parents' Support Organization
Photography Club
Physics Club
Point Press
Polish Club
Portuguese Center
Prison Reform Organization
The Pub
Puerto Rican Student Organization
Recreation Rooms
Revolutionary Student Brigade
Rifle and Pistol Club
Russian Club
Sailing Club
Ski and Outing Club
Social Events
Spanish Club
Spartacus Youth Group
Student Book Exchange
Student Advocacy Center
Student Veteran's Club
Tennis Club
Ticket Series
Ujima
Videcom
Women's Center
World Affairs Society
WUMB Radio
Yearbook
Young Socialist Alliance

A quarter of a million dollar student activity trust fund is administered by a professional staff acting under the authority of a 24-person elected student board.

The University operates a well-staffed Student Health Service, paid for through student fees, which provides care for usual short-term medical problems and provides a referral service for more extreme problems. The Health Service reviews the reports of physical examinations and medical histories of all entering UMass-Boston students so that the University can be aware of medical problems requiring attention and make any adjustments in academic or athletic activites. It sponsors a low-cost health insurance program for medical services not offered on campus, and all student health records are kept confidential. A Student Health Service Advisory Committee helps develop policy and report on the needs and expectations of the student body for health care.

The University sponsors a Campus Ministry, with regular religious services and an active chaplaincy for members of the Catholic, Protestant, Jewish and Orthodox faiths. A professionally-operated bookstore offers both textbooks and a lively browsing collection.

And the University is now building a $9 million physical education complex, the Catherine Forbes Clark Memorial, which will include a competition hockey rink, swimming pool and basketball court, with gyms for exercise, dance, martial arts and handicapped athletics and a set of outdoor tennis courts and fields for soccer and baseball. UMass-Boston already has a pool and a full-sized gym, weight training rooms, handball and squash courts and a fleet of ten sailboats and eight rowing dories.

With an excellent, energetic faculty and top-quality new facilities, UMass-Boston offers the community the opportunity for an outstanding education on a convenient schedule and at an affordable price. UMass is Metropolitan Boston's own public university.

Becoming a Student

The University of Massachusetts at Boston accepts students either as freshmen or transfers. Every interested person is encouraged to apply and will be evaluated on his or her own merits. Most freshmen come from standard college preparatory courses in high schools, and most transfers, from two-year junior colleges. But persons with different backgrounds, particularly those lacking high school or junior college preparation, can submit an application with letters of recommendation, personal statements of their goals and objectives or anything else to suggest their readiness for college level work. To be an older person, to have been out of school for several years, or to have by-passed the normal routes to college do not disqualify a person from admission to UMass-Boston.

The application for admission and other admission material may be obtained from the Admissions Office, University of Massachusetts at Boston, Harbor Campus, Boston, Massachusetts 02125. Prospective applicants are warmly encouraged to visit the campus, sit in classes, chat with students or faculty, tour the Library and other campus buildings and, if they wish, meet with an Admissions Counselor. Visits to the

campus should be arranged by contacting the Admissions Office, phone 287-1900.

Freshmen applicants normally have taken the standard college preparatory program in high school: four years of English, three years of college preparatory mathematics, one course in United States history, two years of a foreign language and one lab science course. High school students applying to the College of Arts and Sciences and the College of Professional Studies should take the Scholastic Aptitude Test as early as possible in their senior year. Older students who have been out of school for several years may have this requirement waived. Applicants for admission to the College of Public and Community Service are not required to take the tests, although they may include test scores in their applications if they have them.

Transfer Applicants should attach to their applications transcripts for all courses completed at other colleges and universities. The University is a member of the Massachusetts Transfer Compact, which facilitates admission for graduates of public two-year colleges in the state. The University's transfer credit policy is currently under review. The new policy will be in effect by the Spring 1979 semester. For additional information contact the Admissions Office.

Foreign students must meet the regular admission requirements of the University, but with the following conditions:

- Their completed application including the non-refundable $25 (in U.S. dollars) must be received at least six months before the date on which they wish to begin school;
- Transcripts and other certified copies of academic records must be sent to the Office of Admissions with English translations validated by an official public translator.
- Proficiency in English must be established for persons whose native language is not English, either by achieving a minimum score of 500 on the Test of English as a Foreign Language (TOEFL) or by ELS Language Center Certification of satisfactory completion at the 109 level of proficiency. For information on TOEFL, write to: The TOEFL Program, Box 899, Princeton, New Jersey 08540, U.S.A. For information on ELS certification, write to: ELS Language Center, 415 Commonwealth Avenue, Boston, Mass. 02215, U.S.A.
- A Declaration and Certification of Finances must be completed, based on the estimate of institutional cost and living expenses. All questions on the form must be answered accurately, and it must show that the total funds available to the student for the first and/or second academic years are at least equal to the total estimates of institutional costs and living expenses.
- A Certificate of Eligibility (Form I-20A) is issued by the University to the student based on Department of Immigration procedures for checking his or her financial resources. Form I-20A and an official letter of admission are required under all circumstances for a foreign student to be admitted to the University.

Students Without Normal Preparation in high school or junior college should apply to the Developmental Studies Program, which provides pre-freshman training, personal counseling, academic advising and career planning to overcome any disadvantage they might have in relation to other students and to assist them to become self-directed learners. Applicants to the Developmental Studies Program must submit the following materials with their completed application form:

- Transcripts from any high school or college attended, or a General Equivalency Diploma;
- Scores on Scholastic Aptitude or other tests, if any
- Two letters of recommendation.

After an application with these materials is submitted, the University will schedule an interview with the applicant to determine the applicant's interest, motivation and potential for study and the suitability of the Developmental Studies Program for making up his or her academic deficiencies.

The New England Regional Student Program enables residents to attend courses of some universities in other states at only the cost of their own in-state tuition. For further information, contact the University's Admissions Office, or the New England Board of Higher Education, 40 Grove Street, Wellesley, MA 02181.

Evening and Part-Time Students are admitted by the same process as daytime students. The University has one schedule which runs from 8:00 a.m. to 10:00 p.m. The same faculty that teaches during the day also teaches at night. Students can freely change from full- to part-time study during their college careers, and students who attend classes in the evening can be assured of being able to complete degree programs just like their daytime counterparts. The University admits students without regard to what time of day a student wishes to attend or how many courses he or she plans to take.

A completed admissions application with all supporting credentials must be on file with the Admissions Office before a final decision regarding acceptance can be made. The application must include the following:

- The admissions application form, which must be completed and notarized.
- A $10 non-refundable application fee, $25 for non Massachusetts residents, accompanying the application form.
- Official transcripts must be forwarded to the Admissions Office by high school guidance offices or the registrars of all college-level institutions attended.
- Scholastic Aptitude Tests (or American College Test) scores must be submitted by applicants to the College of Arts and Sciences and the College of Professional Studies unless they have more than 30 college semester credits. Persons who have been out of school for several years may have this requirement waived by special request. Applicants to the College of Public and Community Service are not required to take such tests, although they may include test scores with their applications if they have them. It is the applicants responsibility to make the arrangements to take the appropriate test and to have the results forwarded to the University Admissions Office. Information on test requirements and schedules for test-taking may be obtained from high school counseling offices or the Educational Testing Service, Princeton NJ. The University's College Entrance Examination Board number is 3924.
- Applicants to the College of Public and Community Service are required to attend an Admissions seminar. This should be done prior to submitting the application for admission. These seminars are held twice weekly at the College, 100 Arlington Street, Tuesdays, 9:00-10:00 a.m. and Wednesdays, 6:00-7:00 p.m. Sessions are not held during August.

Qualified candidates will be admitted on a "rolling admission" basis until the capacity of individual programs has been reached. Freshmen applicants are advised to submit complete credentials as soon as possible after the first marking period of their Senior year.

Individuals are generally notified by letter of the action taken on their application two to three weeks from the receipt of all credentials and application materials.

ummer School

e University offers a variety of under-duate and graduate courses during the nmer, particularly those courses which overenrolled during the school year. is allows students to fulfill University uirements or explore areas outside their ular studies. The three Colleges hold nmer classes at their regular Harbor mpus or Downtown locations, but in ad-ion, courses in biology, anthropology d theater arts are given at the University's ld station on Nantucket Island. Unlike the grams offered in the regular year, the mmer School has an "open admissions" icy by which any person may be enrolled o has completed a secondary school edu-ion. For further information, consult the mmer School office at the University, one 287-1900.

pportunities for igh School Students

Through the "Flexible Campus Pro-am," juniors and seniors enrolled in ston-area public, private or parochial h schools can enroll in any introductory-el course at UMass-Boston if space is ilable. If they can meet the prerequisites, high school students can enroll in anced-level courses as well. This pro-m gives high school students a chance to what college — and the University — is e and to explore fields beyond those of ir own schools. "Flexible Campus" stu-nts participate fully in classes and are ded like regular UMass-Boston stu-nts, and they may apply the credits they n to their high school or to UMass-ston itself, if they chose to enroll there er. Interested students should be nomi-ed by their high school guidance coun-or or Flexible Campus Coordinator to the Mass-Boston Institute for Learning and aching. The program is free.

Low-income Boston high school shman or sophomores who are not en-led or not doing well in college pre-atory courses may be selected for a uni-sity program which will prepare them for gular entrance into the University. rough the College Preparatory Program dents are given intensive training in demic skills, including reading, public aking, writing, mathematics and basic ences, and are counseled on oppor-ities for personal growth in education and careers. The College Preparatory Program provides a six-week residential program during July and August on the UMass-Amherst Campus and regular classes and tutorials during the school year at the UMass-Boston Harbor Campus. To be admitted to the program a student must have a low income background, be enrolled in the general or business curriculum of his or her high school or be working below potential in its college preparatory program, and show the motivation and capability for success in college. Upon successful completion of the College Preparatory Program, students are accepted for admission to the University. Further information and applications are available at the College Preparatory Program Office.

Academic Regulations

ACADEMIC REGULATIONS

Sections designated by asterisks (*) do *not* apply to the College of Public and Community Service (see p. 121).

Conduct

A high standard of conduct, based on self-respect and consideration for the rights of others, is expected of all students. The disciplinary system of the University is based on a published code of student conduct, and is administered by the University Committee on Student Discipline, a group comprised of faculty and students. Hearings are conducted to insure due process and fair and impartial consideration. The University, acting through its chancellor or any administrative officer designated by her, distinctly reserves the right in emergency situations to suspend a student. A student so suspended by administrative action is entitled to a speedy consideration and disposition of his or her case by the University Committee on Student Discipline.

Attendance

Students are expected to attend all scheduled classes. No administrative control of attendance is exercised except as hereinafter provided. In case of illness, students should explain their absence directly to their instructor, and grades shall not be reduced because of absences due to illness when students have met their instructors' requirements for making up back work. Students should report illnesses to the University Health Service, which will verify dates of absence if requested by faculty members.

*Course Load for Full-Time Students

Students may plan their programs for four years (eight semesters) or five years (ten semesters). Freshmen and sophomores normally carry four courses for sixteen credit hours; juniors and seniors normally carry five courses for 15 credit hours. Because juniors and senior science majors may find it necessary in one term to take three 3-credit courses, a 4-credit core curriculum required course and a 5-credit laboratory course, students who must take laboratory courses of more than four credits may take a course load of 18 credits. Students with cumulative averages of 3.0 or 3.5 may take one extra course with the permission of their advisors.

Course Changes

Students are allowed five school days from the beginning of the semester to add, drop or substitute courses without notation of the change appearing on their record. The procedure for this "Add/Drop" period is:

- Pick up an add/drop card from the Registrar's Office;
- Have the instructor of a course to be added certify on the card that space is available;
- Have the instructor of a course to be dropped release the student on his or her records and on the card.
- Have the add/drop card signed by the advisor; and
- Return the completed add/drop card to the Registrar's Office.

From the sixth academic day to the withdrawal deadline of each term noted on the academic calendar a student may still drop courses but will receive a grade of "W" for each course on his or her record. Withdrawals however, are not computed in the student's grade point average. To drop courses after the fifth academic day, students should:

- Obtain course withdrawal card from their Dean's Office;
- Have the card signed by the instructor and advisor to certify withdrawal; and
- Return the card to the Registrar's Office.

Final Examination Schedule Changes

A student may have a final examination rescheduled if he or she has two examinations scheduled at the same time or three examinations scheduled on the same day. The student should request such a change from the instructors involved.

*Graduation Requirements

In order to graduate, students must meet the requirements of a major department, the core curriculum requirements of their college and must have successfully completed 124 credit hours. Within these must be included a minimum of 45 residency credits at the University (see page 20). Students who qualify may count up to four credits from advanced placement in languages or other freshman-sophomore courses toward the 124-credit-hour total.

*Change of Major

Students who have declared a major field and wish to change it should consult with a member of their college dean's advising office staff. Upon approval of the change by the dean's office, the Registrar and the departments involved will be notified and the student will be assigned a new advisor.

Grades

The University utilizes a system of letter grades which are equivalent to numerical "quality points":

Letter Grade	Quality Point Equivalent
A	4.00
A–	3.75
B+	3.25
B	3.00
B–	2.75
C	2.00
C –	1.75
D	1.00
D –	.75 (min. pass.)
F	.00 (fail)
Inc	Incomplete
Pass	Passing, under Pass/Fail Option (see below)
Y	Interim grade in a declared year-long course

The quality points for each grade are multiplied by the number of credits for the course and the totals for all courses are added to arrive at the student's cumulative quality points. The cumulative quality point figure is divided by the number of cumulative credit hours carried

arrive at the cumulative quality point aver-
e.

Pass-Fail Option

A student may elect one course each semes-
r up to a maximum of eight in his or her
llegiate work to be taken on a Pass/Fail basis.
ne grade of "Pass" will be given for a suc-
ssfully completed Pass/Fail course; it will be
cluded in credit toward graduation but not in
ality points or the cumulative average. To
ke a course on a Pass/Fail basis, a student
ust be carrying three courses or at least twelve
edits during the semester in which the Pass/
il course is elected. The student must present
Pass-Fail option card for the course to the
egistrar's Office at the time announced during
ch semester, and a Pass/Fail request, once
bmitted, cannot be withdrawn or changed
ck to the regular grading system.

redit for Summer Courses
utside the University

Students must obtain prior authorization
om the appropriate University department to
ceive credit for courses taken elsewhere in the
mmer. A course authorization form should
obtained from the Registrar's office, and
hen it is completed, the original should be
turned to the Registrar and one copy kept by
e student and the department. Generally, uni-
rsity credit is given for the course if the
udent receives a grade of "B" or higher, but
rmission to accept a lower grade may be
quested from the University department to
hich the credit is being transferred. The stu-
nt must make certain that a transcript is sent
the Registrar for outside courses applied for
niversity credit.

ational Student
xchange Program

University students can receive credit for
om one term to a year's study at another major
niversity through the National Student Ex-
hange Program, which will allow them the
xperience of studying under other social and
ducational patterns in different parts of the
nited States. Students participating pay
ughly the same tuition at the other 39 schools
rticipating in the program as at the Universi-
. Students from other participating schools
n be found studying at the University. To
ke part in the program, students should be
phomores or juniors with at least a 2.5
mulative grade point average.

***Failed Courses**

A failure in a course required for a degree must be repeated. If it is repeated and passed, the original failure will not be computed in the cumulative average, although it remains on the student's record.

***Transfer Records**

The cumulative average of a transfer student at a former school is not carried over to the University. The student begins a new cumulative average upon admission. A transfer student cannot be dismissed for poor grades in the first semester at the University, but for all subsequent semesters, the student must attain the cumulative average necessary for good standing in the class to which he or she was assigned (see below).

***Departmental and University Honors**

Students may graduate with honors in their major field by meeting the requirements of a departmental honors committee, which usually involves successful completion of an honors thesis or seminar or attainment of a 3.5 average in the field. Admission to honors work is governed by the departmental honors committee, although a cumulative averge of 3.0 is required for honors students in all departments. Students may count up to six hours of honors work toward graduation, whether it meets departmental standards for honors or not.

The University bestows three separate honors designations for scholastic excellence reflected in the cumulative average:

Summa cum laude	3.75 or above
Magna cum laude	3.50 to 3.54 inclusive
Cum laude	3.30 to 3.49 inclusive

Good Standing, Probation and Academic Dismissal

Students whose semester averages fall below 1.5 in any semester are placed on scholastic probation and are warned by a statement on the bottom of their copies of their semester grade report that continued below-standard performance will result in academic dismissal or failure to graduate. The University Committee on Standards and Scholarship is charged with modifying, extending or limiting the restrictions on a student during the period of scholastic probation and determining its length. The Committee reports all such modifications to the University Assembly.

Students are academically dismissed when their cumulative averages fall below the following requirements for good standing:

Number of Terms Completed	Cumulative Average Required for Good Standing
1	0.0
2	1.3
3	1.5
4	1.6
5	1.7
6	1.8
7	1.9
8	2.0

Students electing five-year programs must maintain 2.0 averages for the last two semesters.

Students readmitted after academic dismissal must attain the cumulative average for the class to which they are assigned at the time of readmission.

Voluntary Withdrawal

Students may withdraw from the University before the last of classes of a semester, although the effective date of withdrawal is that on which all forms are completed, signed and returned to the Registrar. Students withdrawing receive a "W" for each course in which they are enrolled. Failure to complete a withdrawal form will result in the grade of "F" recorded in all courses at the end of the term.

To withdraw from the University, a student must do the following:

- Consult with a member of the Dean's advising staff, who will provide and sign a withdrawal form.
- Receive clearance from any University offices in which financial charges have accrued. These offices may be the library, the Health Service, the Bursar's Office, the Student Affairs Office, Financial Aid, the bookstore and the science laboratories.

***Readmission**

Students who leave the University in good standing may resume their studies by obtaining a readmission form from the Registrar's Office, completing it and returning it to the Registrar's Office. They will be notified in writing of their readmission status.

Students who have been dismissed from the University and wish to resume their education should pick up and complete a readmission form from the Registrar and also write a letter of appeal addressed to the University Standards and Scholarship Committee and make an appointment for an interview with a member of the advising staff in their college.

All previous course work at the University remains part of the permanent record for students who have been readmitted, and the cumulative average includes all prior grades, regardless of how much time elapsed between enrollments.

Deadlines for Registrar's Receipt of Readmission Forms

Students wishing to re-enter the University in the Fall semester must have their readmission forms received by June 1, and in the Spring semester by November 1. After these dates, readmission will be permitted only upon the availability of space.

Administrative Withdrawal

A student may be administratively withdrawn from the University if, after due notice, the student fails to satisfy an overdue financial obligation to, or to comply with certain administrative requirements of, the campus of the University of Massachusetts at which the student is registered.

Section 1/Conditions Warranting Administrative Withdrawal

Any of the following conditions may warrant administrative withdrawal:

a. Failure to comply with administrative requirements: specifically,
   1. Failure by a student to satisfy an overdue financial obligation to the University, consisting of tuition, loans, board, room fees, library charges, or other student charges, including orientation, student activities, health services, child care, and other such fees as may be established from time to time.
   2. Failure to comply with other administrative requirements, such as the submission of health forms, etc.

b. Forgery, fraud, or falsification of information on any official University form or document, such as Bursar's Clearance Card, grade report, recommendations, transcripts, etc.

c. Certified physical health or mental problems of hazardous nature.

Section 2/Effects of Administrative Withdrawal

a. If administratively withdrawn, a student shall cease to be enrolled and shall not be allowed to complete the current semester or to register for future semesters.
b. The student shall return his or her identification card and any and all other property belonging to the University currently in his or her possession.
c. The student shall receive no further material or notification from the Registrar concerning University affairs.

Section 3/Procedures for Implementing Administrative Withdrawal

I. Procedures to be applied to cases brought under conditions (a.) of section 1.
   a. The appropriate administrative official may recommend to the Registrar that a student be administratively withdrawn from the University.
   b. The administrative official shall make his recommendation in writing to the Registrar, detailing his compliance with the following requirements:
      1. The recommendation must be based on one of the grounds set forth in Section 1a.:
      2. The facts upon which the recommendation is based must be ascertained and stated precisely and accurately.
      3. An attempt to resolve the matter must have been made by the administrative official by mailing to the student at his last known address a written notice of the proposed recommendation for withdrawal and the reasons therefore, such matter not having been successfully resolved within fourteen calendar days of the mailing of said notice.
   c. If the Registrar is satisfied that the conditions specified in paragraph b. of this section have been satisfied, he shall send a certified letter to the student at his last known address setting forth the recommendation for withdrawal and the reasons therefore, and notifying said student that he or she may within fourteen calendar days after said letter is mailed request a hearing on the matter with the Registrar. The Registrar shall include with the certified letter a copy of the Rules and Regulations Governin Administrative Withdrawal.
   d. If the student does not request a hearin with the Registrar or take action satisfac tory to the Registrar to resolve the matte within the time allotted in paragraph c of this section, the Registrar shall ad ministratively withdraw the studen from the University no sooner than th fifteenth calendar day following th mailing of the notice provided for in sai paragraph.
   e. If a student requests a hearing within th time allotted in paragraph c. of this sec tion, the Registrar shall schedule a hear ing at the earliest practicable date. If th Registrar decides in favor of the adminis trative withdrawal, the Registrar shal forthwith withdraw the student.

II. Procedures to be applied to cases brough under conditions b. and c. of Section 1.
   a. The appropriate administrative officia may recommend to the Administrativ Withdrawal Review Committee that student be administratively withdraw from the University.
   b. The administrative official shall mak his recommendation in writing to th Administrative Withdrawal Revie Committee detailing his complianc with the following requirements:
      1. The recommendation must be base on one of the grounds set forth i Section 1b. or c.;
      2. The facts upon which the recom mendation is based must be ascer tained and stated precisely and accu rately;
      3. An attempt to resolve the matte must have been made by the ad ministrative official by mailing t the student at his last known addres a written notice of the proposed rec ommendation for withdrawal an the reasons therefore, such matte not having been successfully re solved within fourteen calendar day of the mailing of said notice.
   c. If the Administrative Withdrawal Re view Committee is satisfied that the co ditions specified in paragraph b. of th section have been satisfied, it shall sen a certified letter to the student at his la known address setting forth the recon mendation for withdrawal and reaso therefore and notifying said student th he or she may within fourteen calend

days after said letter is mailed request a hearing on the matter with the Committee.

d. If the student does not request a hearing with the Committee or take action satisfactory to the Committee to resolve the matter within the time allotted in paragraph c. of this section, the Committee shall instruct the Registrar to administratively withdraw the student no sooner than the fifteenth calendar day following the mailing of the notice provided for in said paragraph.

e. If a student requests a hearing with the Committee within the time allotted in paragraph c. of this section, the Committee shall schedule a hearing at the earliest practicable date. The student shall have the right to testify and to present witnesses or such other evidence as may be relevant; in addition the student shall have the right to have a physician or attorney present, to cross-examine witnesses, or all of these. The Committee shall hear the case and decide whether facts exist which warranted administrative withdrawal under Section 1 b. or d. If the Committee decides in favor of administrative withdrawal it shall submit to the student a written statement of its findings, its decision, and the conditions under which the student may be reinstated.

f. The student may appeal a decision by the Committee in favor of withdrawal to the Vice Chancellor for Student Affairs within seven calendar days of the date of the Committee's decision. If the student does not appeal the Committee's decision within the seven calendar days alloted, the committee shall instruct the Registrar to withdraw the student. If the student does appeal to the Vice Chancellor for Student Affairs within the time allotted, the Vice Chancellor shall schedule an appointment at the earliest practicable date and at that time shall confer with the student (accompanied by counsel if the student so wishes) regarding the Committee's finding, decision, and determination of reinstatement conditions. If the Vice Chancellor affirms the Committee's decision, he shall notify the student of his decision, and instruct the Registrar to withdraw the student. On appeal from the student, the Vice Chancellor for Student Affairs may modify the reinstatement conditions.

Section 4/Reinstatement

I. Reinstatement from administrative withdrawal brought under conditions a. of section 1.
   a. Any student who has been administratively withdrawn under section 1 a. may make arrangements with the Registrar for the resolution of the matter. Upon such a resolution satisfactory with the Registrar, the Registrar shall forthwith reinstate the student to active enrollment status. The determination of whether a reinstated student shall receive credit for the period for which he was withdrawn shall be made by the instructor for each course involved.
   b. A student who fails to resolve the matter in the semester during which he or she is withdrawn, can be reinstated in a subsequent semester upon satisfaction of the administrative requirements at issue in the University's withdrawal of the student.

II. Reinstatement from administrative withdrawal brought under conditions b. or c. of section 1.
   Any student who has been administratively withdrawn under conditions b. or c. shall be reinstated only upon satisfaction of the conditions established by the Administrative Withdrawal Review Committee, or by the Vice Chancellor for Student Affairs where the Vice Chancellor hes changed reinstatement conditions appealed by the student.

Section 5/Administrative Withdrawal Review Committee

The Administrative Withdrawal Review Committee shall be appointed each year by the Chancellor. The Registrar shall not be a member of said Committee except that he shall sit in place of a regular member in any case wherein said regular member is the administrative official recommending withdrawal. The Committee shall be empowered to make decisions concerning administrative withdrawal as provided above.

Right to Review University Records

Educational Rights and Privacy Act

In accordance with Public Law 93-38, the University wishes to inform all UMB students of their rights to review their Education Records on file at the University.

Education records include those records, files, documents, and other materials which contain information directly related to a student, and which are maintained by the University or by a person acting for the University from the Educational Rights and Privacy Act.

Any UMB student wishing to examine his or her education record should so request one of the following offices directly. (NOTE: Other offices sometimes hold copies of education records for their use. Students desiring information on these offices should contact the Office of Student Affairs).

Admissions
Dean's Office
Financial Aid
Health Services
Registrar
Teacher Certification Program

Although the law allows 45 days from the request date before access to records needs to be granted, most UMB offices will try to satisfy written requests within a few days. Students should note, however, that certain education records are regarded as confidential, and that the availability of the information contained therein is limited (for instance: medical records, parents financial records).

The Privacy Act of 1974 also limits the ability of educational institutions to release information from a student's education record to third parties - except for data regarded as "directory information". While at present there is no directory published for students at UMB, the University regards a student's name, address, collegiate affiliation, status, officially recognized activities, and graduating class as "directory information" and thus reserves the right to release that information to third parties, unless the student has requested that the information not be released without his/her prior consent.

If a student requests a copy of any part of his/her education record, either for personal use or for release to a third party, the student shall incur the cost of copying not to exceed $5/copy.

Any questions and/or challenges concerning these matters should be addressed to the Office of Student Affairs, Administration Building, Third Floor.

Residence Status

Rules and Regulations for the Classification of Students for Tuition Purposes

These rules and regulations shall apply to the classification of students at the University of Massachusetts as Massachusetts or non-Massachusetts students for tuition purposes.

Section 1. Definitions

(1) *ACADEMIC PERIOD* - A term or semester in an academic year or a summer session, as prescribed by the Board of Trustees or under their authority.

(2) *CONTINUOUS ATTENDANCE* - Enrollment at the University for the normal academic year in each calendar year, or the appropriate portion or portions of such academic year as prescribed by the Board of Trustees or under their authority.

(3) *DOMICILE* - A person's true, fixed and permanent home and place of habitation, where he intends to remain permanently or for an indefinite time.

(4) *EMANCIPATED PERSON* - A person (a) who has attained the age of 18 years, or (b) if under 18 years of age, whose parents have entirely surrendered the right to the care, custody and earnings of such person and who no longer are under any legal obligation to support or maintain such person, or (c) a person who has no parent. If none of the aforesaid definitions apply, said person shall be deemed an "unemancipated person".

(5) *HIS* - Shall apply to the female as well as the male gender.

(6) *PARENT* - With respect to a person (in the case of an adopted person, inserting the adjective "adoptive" before the words "father" and "mother" wherever used):

(a) the person's father;
(b) if the person's father dies, either the legal guardian or if no legal guardian is appointed, the person's mother;
(c) if neither the father nor mother is living and no legal guardian is appointed, the person who then stands *in loco parentis* to the person;
(d) if the father and mother are divorced, separated or unmarried and legal custody of the person is awarded;
(e) if the father and mother are divorced, separated or unmarried and legal custody has not been awarded, the father or the mother, as the case may be, with whom the person lives or, if he lives with neither and the father is living, the father.

(7) *RESIDENCE* - A place of habitation.

Section 2. Rules for Determination of Domicile

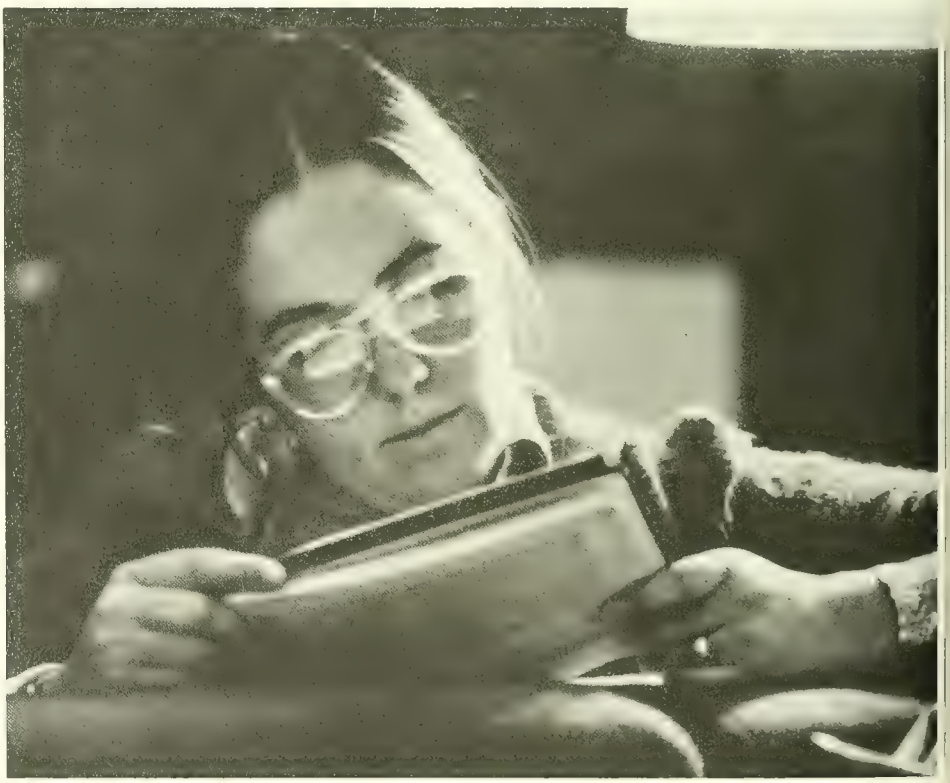
(1) Domicile is not acquired by mere physical presence in Massachusetts while the person is carrying on a course of study at the University or while the person is engaged in employment for a specified term unless Massachusetts is otherwise the domicile of the person.

(2) Domicile at birth may be changed thereafter, by action of the parent in the case of an unemancipated person or by action of the person himself in the case of an emancipated person.

(3) A person claiming Massachusetts as his domicile shall furnish evidence to support such claim. The burden of proof in all cases is upon the person making the claim. The following shall be of probative value, although not necessarily conclusive, in support of a claim of domicile within Massachusetts:

(a) Birth certificate;
(b) Motor vehicle registration and/or operator's license;
(c) Voting or registration for voting;
(d) Certified copies of Federal and State Income Tax returns;
(e) Property Ownership;
(f) Continuous physical presence in Massachusetts during periods when not enrolled as a student;
(g) Permanent employment in a position not normally filled by a student;
(h) Reliance on Massachusetts sources for financial support;
(i) Former domicile in Massachusetts and maintenance of significant connections therein while absent;
(j) Domicile of parent within Massachusetts.

Evidence submitted in support of an assertion of domicile or of parental relationship shall be in such form as the Treasurer of the University or his designee may require. Copies of official records or documents shall be authenticated by a proper officer. Assertions of fact made other than by an authenticated copy of an official record shall be certified as to accuracy and completeness by the person submitting the same.



Section 3. Proof of Parental Relationship

A person asserting that he is an emancipated person shall furnish evidence to support such assertion. Such evidence may include:

(a) Birth certificate or any other legal document that shows place and date of birth;
(b) Legal guardianship papers — court appointment and termination must be submitted;
(c) Statements of the person, his parent(s), guardian(s), or others certifying no financial support;
(d) Certified copies of Federal and State Income Tax returns filed by the person and his parent(s);
(e) Where none of the foregoing can be provided, an affidavit of the emancipated person in explanation thereof and stating fully the grounds supporting the claim of emancipation.

Section 4. Rules for Classification

(1) Every emancipated person applying for admission to the University who has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the date of his application and has established a domicile in Massachusetts shall be eligible for classification as a Massachusetts student for tuition purposes.

(2) Every unemancipated person applying for admission to the University, whose parent has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the date of his application and has established a domicile in Massachusetts shall be eligible for classification as a Massachusetts student for tuition purposes.

(3) Every emancipated person seeking a change in classification who has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the beginning date of the academic period for which he registers and has established a domicile in Massachusetts shall be eligible for classification as a Massachusetts student for tuition purposes for such academic period.

(4) Every unemancipated person seeking a change in classification, whose parent has maintained a residence in Massachusetts for a period of not less than one continuous calendar year next preceding the beginning date of the academic period for which the person registers and has established a domicile in Massachusetts, shall be eligible for classification as a Massachusetts student for tuition purposes for such academic period.

(5) A person having his domicile elsewhere than in Massachusetts shall not be eligible for classification as a Massachusetts student for tuition purposes except as herein provided.

(6) Any person who is registered at the University as a Massachusetts student shall be eligible for continued classification as a Massachusetts student for tuition purposes (until attainment of the degree for which he is then enrolled) during continuous attendance at such institution.

(7) A member of the Armed Forces of the United States and his spouse and unemancipated children shall, while he is on active duty and stationed in the Commonwealth of Massachusetts, be eligible for classification as Massachusetts students for tuition purposes.

Section 5. Change in Classification

No application for change of classification as a Massachusetts student for tuition purposes submitted later than the first day of classes shall affect a classification during the then current academic period.

Section 6. Penalty for Misrepresentations

Misrepresentation in or omission from any evidence submitted of any fact which if correctly or completely stated would be grounds to deny classification as a Massachusetts student for tuition purposes shall be cause for exclusion or expulsion from or other disciplinary action by the University.

Section 7. Appeals

Appeal from a determination denying classification as a Massachusetts student shall be initiated by filing a written request with the Treasurer of the University or his designee specifying the particular grounds for said request.

Section 8. Miscellaneous

Nothing contained herein shall be construed as limiting or prohibiting the authority of the Board of Trustees to waive or reduce tuition charges.

Approved by the Board of Trustees, March 6, 1974.

CLASSIFICATION OF STUDENTS

Degree-Seeking Students: These students shall initially submit an application for admission to the Admissions Office and be admitted before being classified as degree-seeking.

A degree-seeking student may switch between full (9 or more credits) and part-time, (2 courses or less, not to exceed 8 credits) status without difficulty. Degree-seeking students may attend classes either in the day or evening.

Degree-seeking students may not switch to Special Student status until they have graduated.

Special Students (non-degree seeking): This status is primarily designed for the person who is not interested at the time of registration in working toward a degree at UMB.

Such a student is not officially admitted to the University and registration as a Special Student in no way implies future admission as a regular degree-seeking student.

Credit earned as a Special Student will not be counted toward a degree at UMB unless the student subsequently applies for regular admission and is accepted as an undergraduate student.

No more than 15 credits earned as a Special Student may be counted toward a degree. The appropriate academic dean must approve the acceptance of credit earned as a Special Student.

If a change to regular, degree-seeking student status is made, an appropriate application must be filed in the Admissions Office.

Special Students will register through the Registrar's Office for courses on a space available basis.

Special Students may take either a full or part-time load.

Special Students will be asked to pay the same tuition and fees as degree-seeking students with the exception of the $15 advising fee.

A Foreign Student (on a student visa) is not permitted to register as a Special Student. Immigration regulations prohibit such a status.

Amherst Students: Interchange students will be required to submit an Interchange application form to the Admissions Office. Once an Interchange student is admitted, he will be classified as a degree-seeking student.

Exchange Students and Degree in Absentia Students will apply directly to the Registrar's Office for permission to register for classes. These students will be classified as full-time

Specials. Exchange students who wish to remain at UMB and obtain their degree from UMB must submit an Interchange application to the Admissions Office and follow the same procedure as all Interchange students.

STUDENT EXPENSES 1978-1979

The financial requirements of the University, changing costs, state and legislative action, and other matters may require an adjustment of these charges and expenses. The University reserves the right to make adjustments to the estimated charges and expenses as may from time to time be necessary in the opinion of the Board of Trustees. The applicant acknowledges this reservation by the submission of an application for admission or by registration.

ENTRANCE EXPENSES

Application Fee: Each application for admission to the University from a degree seeking student must be accompanied by a non-refundable application fee payment of $10.00 for *qualified* Massachusetts residents; $25.00 for non-Massachusetts residents. Checks should be made payable to the UNIVERSITY OF MASSACHUSETTS, BOSTON, and returned to the Admissions Office.

Matriculation and Orientation Fees: Upon acceptance, all first-time students are required to pay a combined (non-refundable) $30.00 fee to indicate their intention to enter and to reserve their place. Fifteen dollars is applied to orientation and counseling expenses. Fifteen dollars will be applied to the first semester's tuition expenses upon enrollment. Checks should be made payable to the UNIVERSITY OF MASSACHUSETTS, BOSTON, and returned to the Admissions Office.

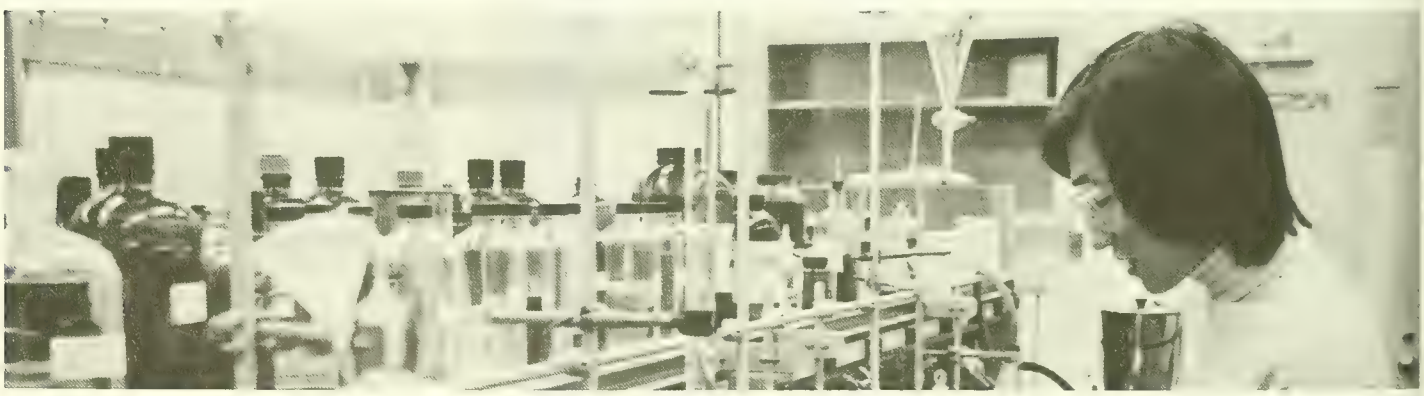
SAMPLE INITIAL PAYMENTS FOR NEW STUDENTS

The initial payments for first semester expenses required for new freshmen and transfer students prior to Fall 1978 Registration, and other expenses reasonably expected are:

Entrance Expenses	*Mass. Residents*	*All Others*
Application Fee (with application)	$10.00	$25.00
Matriculation/Orientation Fee (upon acceptance) ($15.00 is a deposit towards tuition and is deducted from initial semester tuition charge).	$30.00	$30.00
Total Entrance Expenses	$40.00	$55.00

FULL-TIME STUDENTS
Estimated Semester Tuition Bill

Tuition (Mass. Resident) $262.50 Less Matriculation Fee ($15.00)	$247.50	
Tuition (Non-Resident) $775.00 Less Matriculation Fee ($15.00)		$760.00
Student Activities Fee	15.00	15.00
Student Health Services Fee	24.00	24.00
Student Medical/Surgical Ins. (optional) 12 months coverage	66.00	66.00
Athletics Fee	5.00	5.00
Identification Card Fee	1.00	1.00
Mass. PIRG (optional)	2.00	2.00
Total Initial Tuition Bill	$360.50	$873.00
Books, Laboratory, and Other Supplies (estimated)	100.00	100.00
Total Estimated Initial Semester Expenses	$500.00	$1028.00



ANNUAL EXPENSES

Expenses are approximately $800-$900 per year for a full-time Massachusetts resident. The following estimate of a year's expenses for full-time students include only those items which are strictly University-related. Tuition for Massachusetts residents is $525 per year; for others, $1550. *The University reserves the right to change any fees without advance notice.*

Estimated Annual Expenses

Tuition (Qualified Mass. Residents)	$525.00
Student Activities Fee	30.00
Health Services Fee	48.00
Student Medical/Surgical Ins.(12 months coverage)	66.00 (optional)
Identification Card	1.00
Athletics Fee	10.00
Mass. PIRG (optional)	4.00
Books, Laboratory and Other Supplies	200.00
Estimated Total	$884.00

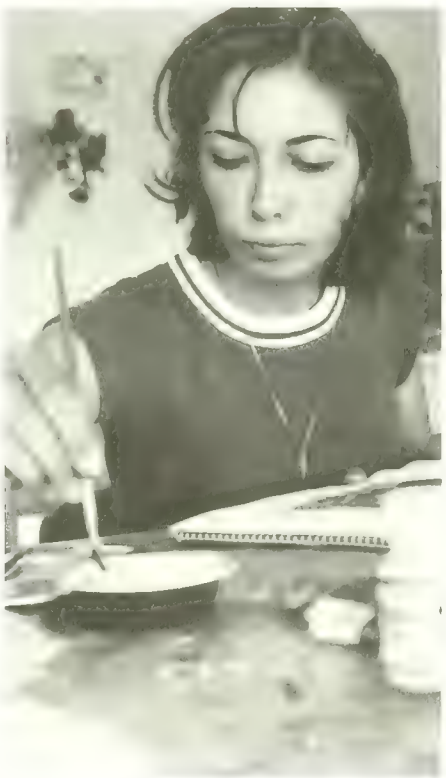
No provision is made for room and board as the University of Massachusetts at Boston is non-residential.

The figure for books, etc. is an estimate. It varies depending upon courses chosen and individual needs. Students should be prepared to pay cash for books and incidental supplies. Certain departments make special charges for necessary laboratory supplies. These are payable after classes commence. The tuition bill will be rendered, to the parent of each student or to the student directly, prior to the beginning of the semester.

Part-Time Students — Undergraduate Degree-Seeking

SP — 1 or 2 courses

Tuition	
Out-of-State	$387.50
In-State	131.25
Fees	
Activities	7.50
Health	12.00
Athletics	2.50
Identification Card	1.00
Medical Insurance (optional)	66.00
Mass. PIRG (optional)	2.00



Special Students SP (Transient Non Degree-Seeking)

Tuition (By the Course)	One Course (1-4) credits)	Two Courses (5-8 credits)	Three or More Courses
Out-of-State	$193.75	$387.50	$775.00
In-State	66.00	131.25	262.50
Fees: Activities	7.50	7.50	15.00
Health	12.00	12.00	24.00
Athletics	2.50	2.50	5.00
Identification Card	1.00	1.00	1.00
Medical Insurance (optional)	66.00	66.00	66.00
PIRG (optional)	2.00	2.00	2.00

Graduate Students GM

Tuition (per credit)	1-8 Credits	9 or More Credits
Out-of-State	$77.50 per credit	$77.50 per credit
In-State	33.50 per credit	33.50 per credit
(Maximum Charge 10 Credits)		
Fees: Activities	7.50	15.00
Health	12.00	24.00
Athletics	2.50	5.00
Identification Card	1.00	1.00
Medical Insurance (optional)	66.00	66.00
PIRG (optional)	2.00	2.00

Explanation Of Fees And Payments

In-State Tuition

As a state institution, the University of Massachusetts at Boston offers a low rate of tuition to all students entering from the Commonwealth. Eligibility for admission under the low residential rate is determined in accordance with the policy established by the Board of Trustees and detailed under the section titled "Residence Status".

Student Activities Fee

This is a mandatory fee set by the Board of Trustees. It is used to support programs and activities beneficial to students, such as the recognized student organizations and the University Cultural Events Committee.

Student Health Fee

This is a mandatory fee for all students set by the Board of Trustees used to support the University Health Services and its programs.

Medical Surgical Insurance (Optional Fee)

An *optional* plan providing health, medical, and surgical care on a twelve month basis for injuries or illness during the school year, holidays, and summer vacation. Students who register for the Fall semester have only one opportunity to enter or reject this program each year, at the time of payment of the Fall semester bill. It is also offered on the Spring semester bill for new Spring registrants only. Dependents of married students are not covered under this plan. Coverage for dependents is available at additional cost. Inquire at the University Health Services.

Commencement Fee

A commencement fee of $15.00 is assessed students in the Fall semester of their senior year, as commencement exercises and events are intended to be self-supporting.

Athletics Fee

This is a mandatory fee for all students set by the Board of Trustees. It is used to support the University Athletics Program.

I.D. Fee

This is a mandatory fee for all students set by the Board of Trustees. It is used to support the

costs of the picture identification card. It is charged each Fall for all continuing students and the first semester of attendance for each new or re-entering student.

Payment Due Dates

In accordance with University policy all charges for tuition and fees are due and payable approximately 21 days prior to the date of final registration for each semester. Bills will be rendered in advance with due date shown and should be returned with the proper payment to the Bursar's Office, University of Massachusetts at Boston, Boston, MA 02125. Payment of bills is an integral part of Registration. A student will not be fully registered until the bills are paid in full or otherwise accounted for. *All* tuition bills must be *returned directly to the Bursar's Office* for registration clearance *by the due date on the bill*. Delinquent accounts will be considered sufficient cause for cancellation of registration, as University regulations prohibit final registration, graduation, or granting credit for any student whose account with the University is delinquent.

Scholarship Payments

It is the responsibility of all students receiving financial assistance to see that the University is adequately notified prior to the time fee bills are prepared. Known scholarships are shown on the fee bills. If such items are not shown, credits cannot be made towards the bill until satisfactory evidence has been presented to the Bursar of the University by the donor or the recipient.

Late Payment and Registration

Any student who does not make payment of his semester charges by the date specified will be required to pay a late payment of $25.00

Tuition and Fee Refunds

A student who withdraws from the University for any reason, except as specified below, before a semester is completed will be granted a pro rata refund of tuition and fees. A withdrawal form must be completed by the student. *Failure to attend does not constitute a withdrawal*. Upon completion of a withdrawal form from the Dean's Office of their respective college, a student who makes an advance payment and then for any reason does not attend any part of the next semester or term at the University will be given a full refund of tuition and fees. The application fee, the $15 admission (matriculation) payment and the $15 orientation payment required of new students are not refundable. A student called into military service before completion of a semester will be given a pro rata refund of tuition and fees provided that he receives no academic credit for the work of that semester. If academic credit is given, there will be no refund. Refunds are first applied to reimburse scholarship or loan funds (up to the full amount), and any remaining amount is refunded to the student or parent. A student who is suspended or expelled from the University for disciplinary reasons forfeits all rights to a refund.

Refund Schedule

Regular Term

A. Within the first two weeks from the beginning of semester or term (Registration Day)	80%
B. During the third week	60%
C. During the fourth week	40%
D. During the fifth week	20%
E. After the fifth week	no refund

Summer Session

A. During the first week	60%
B. During the second week	20%
C. After the second week	no refund

Refunds are based upon the withdrawal date established by the Registrar.

FINANCIAL AID

One out of three University students can receive help in paying for his or her education with funds from the state and federal government and the University itself. Each source of funds has its own rules of eligibility, and thus the University has established a Financial Aid Office to coordinate the effort to see that deserving students receive whatever support is available. The process of awarding financial aid works only if students follow all the instructions and provide all the information requested.

All undergraduates enrolled in degree programs on at least a half-time basis are eligible to apply for aid, although undergraduates carrying less than twelve credits will be awarded aid at less than full eligibility. Graduate students accepted into degree programs on at least a half-time basis are eligible for National Direct Student Loans and University Work/Study employment, although graduate students taking less than nine credits will be awarded aid at less than full eligibility. Special and non-degree undergraduates are not eligible for financial aid.

Financial aid is given only to support a student's education, the basic cost of college attendance, and it does not take into account individual living patterns or life-styles. In this sense, financial aid is unlike social service benefits such as welfare or unemployment compensation in that it does not assume costs such as family support which are not associated with the pursuit of an education. Nor will financial aid be awarded to any student whose family is capable of providing the necessary support, regardless of what reason that family may not do so.

The federal, state and university rules which guide the Financial Aid Office are all based on the concept of "need," which is defined as "the difference between the average cost of attending a college and the reasonable ability of the student and/or parents to meet that cost. The University does not assess financial need itself: all colleges and universities rely on independent agencies which analyze the financial status of students and families on a uniform, objective basis, to insure fairness and equal treatment. The University, like most colleges in the East-

ern United States, uses the College Scholarship Service in Princeton, New Jersey, which applies one set of economic standards to all families. The standard includes family income, assets, family size, taxes, medical costs, and a minimum basic cost-of-living figure.

Deadlines for Returning Upperclass Students

March 15 is the last day that students can submit a completed financial Aid Form to the College Scholarship Service in Princeton, New Jersey, and expect it to return its analysis to the University Financial Aid Office by the Office's May 15 deadline for receiving supporting documents to financial aid applications.

March 31 is the latest date on which applications to the University Financial Aid Office can be submitted to allow awards to be made before the University's fee billing in early August.

May 15 is the deadline for student applications to be completed with supporting documents for awards to be made before the August billing.

Applications made after March 31 or completed after May 15 will be processed on a first-come, first-served basis. Students missing the March 31 or May 15 deadlines may receive Fall term financial aid as late as October but will be held responsible for paying the fall semester fee bill on time — before the Fall term. Thus it is very important for students in need of financial aid to meet the two deadlines.

Students should make copies of all forms and applications mailed or submitted.

Thus the Financial Aid Office weighs three factors in making awards: the cost of attending the University, the parent's and/or student's contribution, and the resulting need for assistance to the student:

The cost of attending the University is determined by the Financial Aid Office in a form like that of a household or personal budget. Because items in any budget change from time to time due to rising labor costs, changes in the costs of goods and services and other influences, the Financial Aid Office reviews its cost of attendance figures every year and often during a year. Students have different living situations, and therefore the cost of attendance budget is computed separately for dependent and independent persons. Here are tentative figures for this year:

Cost of University Attendance

Tentative Budget: 1978-79

Expenses	Dependent Tax Exemption of Parents	Independent
*Tuition	$525.00	$525.00
Activity Fee	30.00	30.00
Athletic Fee	10.00	10.00
ID Card	1.00	1.00
Health Fee	48.00	48.00
Mass. PIRG	4.00 (optional)	4.00 (optional)
Medical Insurance	66.00 (optional)	66.00 (optional)
Room & Board Allowance	1,250.00	3,000.00
Books and Supplies	150.00	150.00
Personal Expense Allowance	450.00	720.00
Transportation Allowance	400.00	550.00
Total	$2934.00	**$5,104.00

*Out-of-State Tuition is $1,550.00
**$800.00 for each legal dependent

The Parents' and/or Student's Contribution to the cost of education is determined by the Financial Aid Office from the College Scholarship Service's analysis of the student's Financial Aid Form and by the professional judgment of members of the Financial Aid Office themselves. In determining the reasonable ability to meet attendance costs, all family assets are reviewed, including job income, equity in property, savings, student summer income, outside scholarships, educational trusts, social security and veteran's benefits.

Need is the difference between the cost of attendance and the student and/or family contribution. In meeting individual needs, the Financial Aid Office must consider the amount of funds available and the *estimated* number of students eligible to receive those funds. The Financial Aid Office follows two general rules: student needs are met to the fullest extent allowed by the funds available, and funds are distributed as equitably as possible. For this reason most financial aid awards are a combination of "soft money," such as scholarships and grants, and "self-help" in the form of jobs and loans. Thus the Financial Aid Office can never guarantee that it will be able to meet a student's total "need," or offer the particular kind of aid desired by the student.

Students may receive aid from nine sources most of which are combined into "package" allocations ranging from $100 to $5,000 by the Financial Aid Office. At the federal level:

- "Basic Educational Opportunity Grants" are designed for low-income undergraduates, both dependent and independent, and provide between $200 and $1,400 per year to cover basic costs of education. Because BEOGs are awarded directly to students, it is their responsibility to transmit notification of awards to the University for processing and crediting of the amount of the award. Students will receive any surplus after University fees are paid in the form of a check from the University. Students may apply for the BEOG independently of their University financial aid application (a BEOG application is included in the regular Financial Aid Form), but if they do, they must submit the BEOG response papers to the University, whether they receive an award or not.
- "Supplemental Educational Opportunity Grants" are designed to help low- to medium-income students and are awarded directly by the Financial Aid Office. They are renewable by undergraduates who remain financially and academically eligible.
- "National Direct Student Loans" are given by the Financial Aid Office to both undergraduate and graduate students. Students must sign promissory notes to receive the loans, which must be repaid at three percent interest starting nine months after graduating or otherwise ending college enrollment.
- "The College Work/Study Program" provides undergraduate and graduate students

with earnings from employment in the university and are assigned directly by the Financial Aid Office. Students may work part-time during the school year and full-time during intersession and summer. The amount of work/study support specified is a maximum figure and not a guaranteed total.

- The "Guaranteed Student Loan Program" aids undergraduate and graduate students who are either ineligible or eligible for only small amounts of University financial aid. It is administered in Massachusetts by the Massachusetts Higher Education Assistance Corporation, better known as the Higher Education Loan Program or "HELP." Banks and other private lending institutions disburse the funds, rather than the University or a government agency. Students must begin to repay these loans nine months after graduating or otherwise ending college enrollment. If a student's family income is roughly under $25,000 the federal government will pay that part of the seven percent interest on the loans which accrues while the student is enrolled.

The Commonwealth of Massachusetts provides the following programs, for in-state undergraduate students only:

- "Board of Higher Education Scholarships" are awarded by the Massachusetts Board of Higher Education, Park Square Building, Boston, MA 02116. Although most of these scholarships are given to low-income students, some are awarded for academic excellence or promise. All in-state undergraduate students applying for any form of financial aid from the University must also apply for the BHE scholarship. Students may do so by listing the Board of Higher Education to receive the Financial Aid Form submitted to the College Scholarship Service. The Board's CSS number is 0558. They may also do so by submitting to the Board a signed copy of their parents' 1040 form if they are dependents or their own 1040 form if they are independent. The Board notifies each student of the response to his or her application, and its awards are not available until late each term. Students must carry at least twelve credits per semester to receive the awards, which are given late in the term.

The University itself sponsors the following forms of support:

- "Tuition Waivers" are authorized by the University Board of Trustees and are awarded by the Financial Aid Office for in-state undergraduate and graduate students.
- "University State Scholarships" are granted annually by the state legislature to in-state undergraduates and are awarded by the Financial Aid Office.
- The "Disadvantaged Student Program" provides funds authorized by the state legislature to in-state undergraduate students from disadvantaged backgrounds. These scholarships are awarded by the Financial Aid Office.

Alumni Association Scholarship

Every year, the UMass-Boston Alumni Association presents a scholarship to a junior student who displays outstanding academic achievement and financial need. The scholarship covers the full cost of tuition for one year.

To insure fairness to all students and its own effective operation, the Financial Aid Office has adopted a code of "Student Rights and Responsibilities":

Student Rights

All students have a right to apply for financial aid and must be considered fairly and equally, without regard to race, creed, sex, or national origin.

All students have the right of review of their case with a professional counselor in the Financial Aid Office.

All students have a right to see all materials held in their folder within the Financial Aid Office (except the Parents' Confidential Financial Information if a parent has specifically prohibited disclosure to the student). No other individual, other than the Financial Aid Office staff in exercising its responsibilities, has a right to see a student applicant's folder, including spouse, parent, etc. In order for this to be done, the student *must* make an appointment with a Financial Aid Counselor.

Each student has a right to expect confidentiality and professionalism in the handling of his or her application for financial aid. This right is closely guarded by the Financial Aid Office staff.

Upon review with a counselor, if the student remains unsatisfied with the analysis of need and the award of aid, he or she has the right to appeal to the Director of Financial Aid, the Financial Aid Advisory Committee, and ultimately, to the Vice Chancellor for Student Affairs.

The student has a right to a timely review and award notice, assuming he or she has met the stated deadlines and requirements of the Financial Aid Office.

Student Responsibilities

The student and parent are responsible to provide all data requested honestly and completely. Falsification of records or withholding of information pertinent to the decision of aid for the student, may result in University action, or, in cases where Federal funds are extended, penalties of law.

The student is responsible to read all information, carefully and completely, and to comply with the stated instructions at all times. Failure to do so will delay awards and may cause the student difficulty in registering for classes.

Students are expected to be prompt in applying for aid and ensuring that support documentation is forwarded in a timely manner to the Financial Aid Office.

The student must comply with all laws and policies covering aid, especially in academic enrollment. Fully-aided students are expected to carry not less that twelve credit hours, and to attend classes and progress in a normal manner toward a degree.

All students must present their University of Massachusetts-Boston identification card when picking up checks, getting confidential financial aid information, and keeping appointments with financial aid counselors. There will be no exceptions to this policy.

University Office of Internships

Students can find opportunities for work experience through field placements with various combinations of academic credit and financial stipends through the University Office of Internships, which has absorbed the functions for University students of the Massachusetts Internship Office. The University Office of Internships has information on part- and full-time placements during the school year and summer in fields such as television and radio broadcasting and on international and federally-sponsored programs.

The University Year for Action is a program of the Internship Office which enables University students to work full-time for one year in public or community service. The student earns ten credits per trimester: three for full-time field work, four for independent study in a major discipline and three for a special urban studies seminar which meets for two-and-a-half hours a week and provides a general analytic framework for the intern's field work. In the seminars, staff

members, outside speakers and the students themselves make presentations on areas such as urban economics, politics, health and advocacy, to which the students can bring their own work experience.

Student Awards

Each year at graduation, UMass-Boston recognizes its finest students by bestowing the following awards:

The John F. Kennedy Honor Award commemorates the groundbreaking in 1977 for the John F. Kennedy Presidential Library on the University campus and is the highest honor the University confers on graduating seniors. A faculty committee selects recipients on the basis of outstanding academic performance and other indications of intellectual development.

The Adrian Jill Barnett Award honors the memory of an alumna fatally injured in a highway accident in 1977, and is conferred on graduating psychology majors who demonstrate academic excellence.

The Alfred R. Ferguson Prize honors the late teacher and scholar who worked to develop the University in its first decade. It is given to the outstanding student in American literature, one of Professor Ferguson's areas of research.

The Richard J. Landry Prize is given in memory of the University teacher and political theorist by his colleagues to an undergraduate for distinguished work in political science.

The Brian Rattigan Prize is awarded to a University student for outstanding creative achievement in memory of this student poet and member of the University's first graduating class who drowned during the summer before his senior year.

The Alvan S. Ryan Award commemorates the first awarding of the title of Professor Emeritus to a retiring faculty member. The award is given to the outstanding graduate student in English, Professor Ryan's department.

The John W. Ryan Faculty Convocation Award is given to the student with the highest average at the beginning of his or her junior year at the University. The award commemorates the convocation of the faculty in 1965 by the University's first chancellor.

The Luis Emilio Soto Prize honors the memory of the late University professor of Spanish, and is awarded annually to the senior Spanish major who best reflects Professor Soto's humanistic qualities and devotion to intellectual life at the University.

Departmental Courses and Requirements

College of Arts and Sciences

The College of Arts and Sciences is the largest academic unit of the University of Massachusetts at Boston. More than 400 faculty members in 22 departments serve an undergraduate student population of approximately 6000. Supplementing departmental programs are some eleven interdisciplinary concentrations providing the opportunity to integrate perspectives and knowledge gained in various disciplines. A graduate program currently offers Master of Arts/or Science Programs in 5 departments. The College supports the general education programs of the other two Colleges of the Boston campus by direct faculty participation and by opening its own courses to all qualified students.

The mission of the College is to provide its students with sound training and experience in the liberal arts and sciences, and, through a variety of devices such as extended day scheduling, tutorial services, and part-time degree programs, to make the education offered readily accessible to the diverse, urban population served.

The general goal of the College is to develop in its students the skills, interests and understandings that will be a basis for life-long personal and professional growth. In addition, several selected programs of the College are pre-professional in nature. Accordingly, graduates of the College either enter directly into working careers or continue their education in professional or graduate programs. The College awards the degrees of Bachelor of Arts, Master of Arts and Master of Science.

Graduation Requirements for the Bachelor of Arts

In order to graduate, a student must acquire a total of 124 credits. Students who qualify for Advanced Placement in languages or other 4 credit freshman-sophomore courses may have the Admissions Office reduce the credit requirement by 1 to 4 credits. All students must earn a minimum of 45 credits at the University of Massachusetts at Boston. In the case of interchange students from the Amherst campus up to 15 credits toward this minimum may be transferred, subject to certain provisions (consult Admissions Office).

Each student is required to take one year of training in writing, normally during the freshman year. This requirement can be met by several different courses. Students should contact Academic Support Services of the College for further information.

Each student shall complete a pattern of core course requirements. The governance of the College has revised the core requirements which are expected to be implemented for students entering the College during the 1979-80 academic year. (See below) However, students entering the College during the 1978-79 academic year may fulfill the core requirements under one of two options:

Option I

In this option each student must take a distribution pattern consisting of twelve semester courses from among the following six areas:

Historical and cultural studies
Foreign language (or intermediate proficiency)
Philosophy, the arts, literature
Mathematics, computer language, statistics
Natural sciences
Social and behavioral sciences

In fulfilling this requirement the student may concentrate the courses in four areas, or may distribute them over five or six areas. In any case the student must have a minimum of two courses in each of four areas. No more than three courses may be counted in a single area. In cases where a course may be appropriate to the requirements in more than one area, the student may count it in only one, unless otherwise specified in the course description. Freshman writing courses, honors courses, independent studies courses, special topics courses and certain applied courses do not satisfy distribution requirements. In the case of foreign languages, intermediate proficiency is satisfied either by examination or by successful completion of a foreign language course at the 200 level. Intermediate proficiency satisfies 3 of the 12 distribution courses. A student who does not achieve proficiency may offer only the courses taken in one foreign language in satisfaction of the distribution requirements.

Option II

In this option students who demonstrate proficiency in a foreign language at the intermediate level shall be exempt from a language requirement. Students who meet the entrance requirements regarding language or otherwise demonstrate elementary proficiency in a

foreign language shall take two semester courses chosen from a foreign language at the intermediate level, or two semesters of foreign literature in translation, or one semester of each.

Each student shall take three semester courses in the social sciences of which at least one must be taken in history, and at least one in another social science discipline.

Each student shall take three semester courses in natural sciences or in mathematics, of which at least two courses must be taken in the same discipline, and at least one in a natural science.

New Arts and Sciences Curriculum (effective Fall 1979)

The new Arts and Sciences Curriculum, which will go into effect in the Fall of 1979 asks students to devote approximately one third of their college work to Core Curriculum courses, one third to courses in a major discipline and one third to elective courses. In addition it asks that students take two courses in English verbal skills (or gain a waiver) and demonstrate competence in writing before the beginning of the junior year by passing the English Writing Test or presenting equivalent evidence.

The Core Curriculum Courses seek to introduce students to liberal learning — the kind of learning that broadens awareness, deepens understanding, poses alternatives, and informs decisions. The College will offer more than a hundred Core Courses that represent essential ways of understanding and evaluating the world and our lives. Students will be required to elect twelve of these Core Courses from the following seven broad areas, and they may count up to three courses in no more than one area, and as many as two in any other area:

Historical and Cultural Studies
Philosophical and Humanistic Studies
Social and Behavioral Sciences
Natural Sciences
Arts
Mathematics and Computer Languages
Foreign Languages

ACADEMIC SUPPORT SERVICES

The Academic Support Services of the College of Arts and Sciences offers a comprehensive program designed to enable students to succeed in their studies. The focus of the program is on academic advising, academic skills instruction, and tutorials, but students are invited to seek assistance through this office with any problem that impinges on their academic careers.

Academic Advising

Each student is assigned an academic advisor. Freshmen meet their faculty advisors during the week of Freshman Orientation and continue through the year with the same advisors. When a student declares a major, usually in the sophomore year, an advisor is assigned by the academic department of the major program. Undeclared majors are assigned advisors by the Office of Academic Support Services. Students who do not know their assigned advisors should consult the Office of Academic Support Services.

Academic Skills Instruction

All new students in the College of Arts and Sciences are given a battery of tests to help them assess their academic strengths and weaknesses; they are then encouraged to participate in those programs which most clearly meet their needs. The Academic Support Office offers credit-bearing Essential Skills courses, non-credit workshops and individual tutorials in general study skills, reading, writing and math. Detailed descriptions, schedules and locations for these offerings are posted in the Academic Support Office.

General Counseling

Students in the College will find skilled advisors on hand in the Office of Academic Support Services to assist with such problems as course withdrawals, withdrawals from the University, grievances, letters of recommendation for post-graduate study or work, choice of program or major, and referral for assistance to other University services.

MAJOR DEGREE PROGRAMS

Anthropology
Art
Biology
Black Studies
Chemistry
Classics
Economics
English
French
German
Greek
History
Italian
Latin
Mathematics
Music
Philosophy
Physics
Political Science
Psychology
Russian
Sociology
Spanish
Theatre Arts

UNDERGRADUATE CONCENTRATIONS AND SPECIAL PROGRAMS

American Civilization
Bio-Behavioral Studies
East Asian Studies
Irish Studies
Latin American Studies
Law and Justice
Linguistics
Study of Religion
Translation
Urban Studies
Women's Studies

INTERDISCIPLINARY PROGRAMS

The American Civilization Program

The American Civilization Program is the special means in the College of Arts and Sciences for providing students with wide-ranging yet coherent opportunities to study the rich complexities of the United States — its people and their history, institutions, ideals, achievements, and aspirations.

In the program students can develop broad perspectives from which to understand their own experience and that of other Americans, past and present. In order to accomplish this, the Program offers its own courses, which may be taken by all students in the University, and a Concentration, which students may take as a complement to their major. Students may also major in American Civilization by means of the Individually-Designed Major option. The Program also provides opportunities for Independent Research, Field Work and Internships, Honors Work, a 15-credit Nantucket Semester, and guided research utilizing the resources of the Kennedy Library.

Courses the Program Offers

For Freshmen: Entering freshmen interested in American Civilization may enroll in specified sections of English 101-102 (Freshman English). These sections will combine instruction in composition with readings in one or more topics in American Civilization.

Such selections will be announced and described each semester. For additional information, consult the Director of Freshman English or the Director of the American Civilization Program.

For Sophomores: Sophomores interested in American Civilization are urged to enroll in either History 265-266 (American History I and II) or English 252-253 (Introduction to Literature in America). Completion of one or the other course is a prerequisite for enrolling in the American Civilization Colloquia.

For Juniors and Seniors: Any junior or senior who has completed either History 265-266 or English 252-253 may enroll in one or more of several different American Civilization Colloquia. Colloquia are designed to introduce students to the interdisciplinary study of American culture and society by examining specific local, regional, or national topics. Each Colloquium is based upon informal but informed discussion, in which students are expected to participate actively, under the direction of a faculty member. Students receive three credits for the completion of each Colloquium.

The following Colloquia are offered regularly:
AmCiv 301A Pioneer Women and Men: The Myth and the Reality
AmCiv 301B The Concept of Culture and the Study of a City
AmCiv 301C Charlestown: The Historical Study of an Old Neighborhood
AmCiv 301D The New South: An Exploration in American Regionalism
AmCiv 301E Aliens and Anglo-Saxons: The Immigrant in American Society
AmCiv 301F Irish-American Culture

Ordinarily, Colloquia may count toward the major requirements of the Department to which the instructor belongs as well as toward the American Civilization Concentration or Major.

Other Courses: During the Spring Semester, the American Civilization Program offers the five AmCiv courses which comprise the *Nantucket Semester*.

Five additional courses are available whenever needed by qualified students:

AmCiv 305 Adjunct Tutorial (1-to-3 credits)
AmCiv 478-479 Independent Study I and II
AmCiv 498-499 Honors Work I and II

Adjunct Tutorial and Field Work: Whenever appropriate and feasible, each colloquium may be extended to include a 1-to-3 credit research project, or a 1-to-3 credit field work project arranged through the University's Office of Internships. Students accepted for a colloquium research project or for field work will enroll in American Civilization 305 (Adjunct Tutorial). Course credits will depend upon the nature of the work and the amount of time spent on the project. Interested students should consult the instructor of the Colloquium in conjunction with which the student wishes to do a research project or field work.

In addition, field work in American Civilization is a feature of the Nantucket Semester.

Independent Research and Study: The American Civilization Program offers students two unique opportunities for original research. Each involves access to primary source materials and consultation with a sponsoring faculty member: the Nantucket Semester which is described below, and Independent Study or, if the student is eligible, Honors Work at the John Fitzgerald Kennedy Library, which will open soon at the Harbor Campus.

To be granted access to the Kennedy Library collections, through the American Civilization Program, students must first be admitted to AmCiv 478-479 (Independent Study I and II). Projects must be carefully defined and specifically related to materials which are in the Kennedy Library collection. Each project will be supervised jointly by an American Civilization faculty advisor and Dr. Sheldon Stern of the Kennedy Library Staff.

Independent Study and Honors Work may also be done without utilizing the resources of the Kennedy Library.

Honors Work in American Civilization: To be eligible for Honors Work, a student must be a Concentrator or Major in American Civilization, and must have a cumulative average of at least 3.3 in the Program, and an overall grade-point average of at least 3.0. The student will define the Honors Project with the help of an American Civilization faculty advisor, and will enroll in AmCiv 498-499.

The Nantucket Semester: The Nantucket Semester provides students with an opportunity to do field-work and original research in American Civilization. Living and learning on the Island during the Spring semester, students study the history, culture, and natural environments of Nantucket, learn methods of interdisciplinary research, and undertake an Independent Study project (under the supervision of a faculty member from the Harbor Campus) which utilizes primary source materials from the archives of the Peter Foulger Museum. Students receive 15 credits for completing the Semester, and may count the five courses toward either the Concentration in American Civilization or the Major in American Civilization.

Students are eligible for the Nantucket Semester in their Junior or Senior year, and are selected on the basis of intellectual initiative, maturity, and academic interests which can be profitably pursued with the unique resources of Nantucket Island. It is not necessary to be an American Civilization Concentrator or Major in order to take the Nantucket Semester.

Detailed information about the Nantucket Semester is available in a brochure which may be obtained from the Director of the American Civilization Program.

The American Civilization Concentration

Students with a sustained interest in American Civilization — regardless of their Major department — may complete a Concentration in American Civilization. That accomplishment is recorded on their official transcripts.

A minimum of six courses is required for the Concentration. Of these, two must be American Civilization Colloquia (AmCiv 301). The remainder must be chosen from among more than 100 courses which are offered by other Departments and Programs, and which are relevant to American Civilization. The courses selected must have a common *focus*: that is, they should share some clearly defined theme or issue in American culture and society, past or present. And the courses selected must represent at least two different disciplines. Two (but no more than two) of the six courses may also count toward the student's departmental major.

Here are examples of themes which might give the required coherence to a Concentration: a visual and dramatic arts focus; an Afro-American focus; an urban focus; an Environmental Studies focus; a study-of-technology focus; a Public Affairs or Public Service focus; a Nantucket Island focus (the Concentration requires only one Colloquium for students electing the five-course Nantucket Semester).

Given the large number and range of courses on American themes and issues offered by Departments and Programs, the Concentration

should be able to accommodate the special interests of every student genuinely committed to studying American Civilization. Of course faculty advisors will be available to assist students in articulating a *focus*, and in selecting appropriate courses.

In consultation with a faculty advisor, students may develop a plan for a major in American Civilization by taking advantage of the Individually-Designed Major option. This plan must be approved by the American Civilization Committee, and by the College Committee on Individual Programs.

The minimum requirements for the Major are: two introductory-level courses, either History 265-266 (American History I and II) or English 252-253 (Introduction to Literature in America I and II), at least ten courses above the introductory level; of these ten courses at least two must be American Civilization Colloquia (AmCiv 301), and the remainder should form a coherent pattern like the *focus* of a Concentration.

Concentration in Biobehavioral Studies

Students interested in animal behavior who are majoring in Anthropology, Biology, or Psychology may choose to concentrate in Biobehavioral Studies.

The purpose of the concentration is to provide a broad foundation in the various approaches to the naturalistic study of the behavior of man and other animals. A concentrator will major in one of the three departments and take an appropriate group of courses in the other two departments. These courses cannot be completed in a short time and interested students are urged to consult with one of the concentration advisors. Course lists and requirements are available from concentration advisors, who are in each of the three contributing departments.

Requirements:

Students entering the concentration are advised to take introductory courses in Anthropology, Biology, and Psychology. In order to have the Concentration recorded on their transcript, students should declare the Concentration by completing the appropriate form available from a concentration advisor and by filing a card with the Registrar.

The requirements are intended not only to introduce the student to animal behavior but also to achieve some breadth in related fields and some depth with advanced courses. For all students declaring the concentration after January 1, 1976, the requirements are shown below; other students should see an advisor.

1. Satisfy major requirements of at least one of the three departments. Each department offers courses that can contribute both to major requirements and to the concentration.
2. Take at least five courses from the approved list in the two departments outside the major department. Include at least one course from each department.
3. The distribution of courses taken in the three departments must include (a) at least one from a group of first courses in animal behavior: Anthropology 210; Biology 248,250; Psychology 265; (b) at least one from a group of courses in associated fields such as: Biology 216, (c) at least two from a group of advanced courses in animal behavior: Anthropology 214, 355, 360; Biology 650; Psychology 465.
4. A practical laboratory and/or field courses (Biology 249; Psychology 266) is strongly recommended.

Creative Writing Program

The English major in Creative Writing must fulfill the general English department requirements for the English major with the following exceptions:

Freshman year: The student may elect to take one semester of En 210, Intro to Creative Writing rather than En 102 upon request or recommendation of the En 101 faculty member.

Sophomore year: Other than English department requirements, the student may enroll in two semesters of Creative Writing.

Junior year: The student may enroll in two semesters of Creative Writing, while seeing to it that he meets the minimal requirements of the English department.

Senior year: The student may enroll in any two Creative Writing courses in addition to the required English department courses. Note: that one semester of the two-semester Creative Writing Workshop is required, and must be taken this year if it had not been elected previously.

Regulations for the English Major in Creative Writing:

1. Four semesters of Creative Writing are required, one of which must be Creative Writing Workshop.
2. In addition, Creative Writing majors must be approved by the Creative Writing Committee.
3. Students wishing to take more than one Creative Writing course per term must receive permission of the Creative Writing Committee.
4. Courses designated as Creative Writing courses may be added to the Curriculum later and will count towards the Creative Writing major.
5. English majors who are not Creative Writing majors will be allowed to take Creative Writing courses, but may not repeat them for credit toward the English major.
6. Questions should be addressed to the Director or other members of the Committee.

Course offerings and descriptions for the Creative Writing Major:

En 210 Beginning Creative Writing
An introduction to the writing of fiction, poetry, and drama for students who are sincerely interested in but not necessarily experienced in creative writing.
Offered each semester. May not be repeated for credit.
En 300 Creative Writing
En 301 The course will emphasize fiction and/or poetry and will be taught through workshops or tutorials.
Offered each semester. May not be repeated for credit.
En 303 Creative Writing Workshop
Two advanced courses for students who have either completed one or more courses of En 303-1 or who have experience in writing. Either 303 or 304 are required of all Creating Writing majors.
Offered each semester. May not be repeated for credit.
ThrArt 251 Playwrighting
ThrArt 252 Either of these courses may be counted as 3 credits towards the degree

The East Asian Studies Concentration

The civilizations of China, Japan, Vietnam and Korea are worthy of study because they are at the same time an important part of the social and intellectual experience of the human race and particularly relevant to today's American students and citizens. Their saliency in world affairs grows daily more important, and it is appropriate for UMass/Boston to offer some

specialized instruction in this field.

It is not intended that students who choose to add a concentration in East Asian studies to work in their major discipline necessarily be preparing themselves for post-graduate work or study in the area. Courses offered in the concentration aim also at general intellectual advancement and satisfaction of personal educational goals.

Courses are at present offered chiefly in the areas of language and literature (Chinese and Japanese), history, politics and sociology, with courses in other disciplines occasionally available. An interdisciplinary "core course" called "Great Issues in East Asian Studies: A Popular Perspective" should be taken by all concentrators.

Admission and Requirements

Those interested in East Asian Studies should plan to take Asian Studies 110, "Great Issues in East Asian Studies" and begin language study as soon as possible. Consult with the Acting Director concerning their qualifications and to develop an individual program of study.

Normally, sophomores, juniors, and seniors will be admitted to the program. Concentrators are required to have knowledge of the Mandarin, Cantonese, Japanese, Korean, or Vietnamese languages or to make a firm commitment to acquire that knowledge; language study is an extremely important part of the program. Two years of language study at UMB is required, but individual partial waivers may be granted on the following basis by the Acting Director.

1) Adequate existing skill level, judged on an individual basis by interviewing and/or testing.
2) For certain transfer students who don't have enough time to complete the two-year requirement.

In addition to Asian Studies 110 and four language courses, concentrators should take two other courses relevant to East Asia. Concentrators may be majors in any department, but existing courses would probably be most relevant to students of literature, history, and the social sciences.

1. Courses offered in connection with the concentration:

Asian Studies 110	Great Issues in E. Asian Studies
Chinese 101	Introductory Chinese I
Chinese 102	Introductory Chinese II
Chinese 201	Intermediate Chinese I
Chinese 202	Intermediate Chinese II
Chinese 251	Modern Literature in Translation
Chinese 253	Chinese Novel in Translation
Chinese 478	Independent Study
Economics 272*	Comparative Economics Systems
History 115	East Asian Civilization I
History 116	East Asian Civilization II
History 123*	Revolutions in the Modern World
History 124*	Revolutions in the Modern World II
History 242*	Modernization of Mid-East and Japan
History 248	Modern Japan
History 250	Modern Vietnam
History 367	Chinese History I
History 368	Chinese History II
History 480C	Oral History of Vietnam
Japanese 101	Introductory Japanese I
Japanese 102	Introductory Japanese II
Japanese 201	Intermediate Japanese I
Japanese 202	Intermediate Japanese II
Japanese 250	Literature in Translation
Philosophy 297	Oriental Philosophy
Politics 200*	Comparative Politics
Politics 355*	Comparative Rural Politics
Politics 387*	East Asian Revolution/Chinese Government
Politics 388	Southeast Asian Revolutions
Religion 232	Religions of the Far East
Sociology 220	Survey of Asian Studies
Sociology 221*	Asian Minorities in America
Sociology 481B	Law and Politics in China

*Not area-oriented but with Asian relevance

Irish Studies Concentration

The Irish Studies Program is an interdisciplinary program aimed at introducing students to various aspects of Irish culture from the early Celtic period to the present. It includes studies in history and literature, and eventually hopes to include studies in Gaelic art, drama, music and religion.

The purpose of the Irish Studies Concentration is to open the door to another culture. It recognizes the importance of the Irish contribution to Western Civilization and to the present day culture, especially in literature, where Irish writers such as Joyce and Yeats are recognized as modern masters. The tradition they established continues with vitality and importance in many contemporary figures such as Frank O'Connor, Mary Lavin, Patrick Kavanagh, Thomas Kinsella, Robert Murphy and many others. The work of all these writers represents but a part, though an important one, of a rich and ancient culture.

It is our hope eventually for an interchange of creative scholars and writers between Ireland and UMass-Boston. Such an interchange is now taking place with students. We hope to increase that interchange. Twenty-four credits are required for the Irish Studies Concentration.

Courses offered have included:

English 350	Early Celtic Literature in Translation
English 405	Irish Literature
English 488	Seminar: Yeats
History 231	Irish History
Theater Arts	482A 20th Century European Drama

Latin American/Spanish American Studies Concentration

The Latin American/Spanish American Studies Concentration is an interdisciplinary program for students interested in Latin American and/or Hispanics in the continental United States. It includes courses in Anthropology, Art, Economics, History, Literature, Political Science, Sociology, and Spanish/Portuguese. The Concentration complements the major. In many cases, Latin American Studies count towards the major and also fulfill core requirements. Completion of the Concentration appears on the student's transcript.

Purpose

The purpose of the Latin American Studies Concentration is to give both non-Hispanic and Hispanic students a deep knowledge and understanding of the Latin American culture and heritage. It also prepares students interested in pursuing graduate study and gives students bicultural training for careers in a rapidly growing job market, consisting of many private and public agencies, health programs, and school systems which have openings for people with a Latin American Studies background.

Admission and Requirements

Before beginning the Concentration, students should have sophomore standing and completed an introductory course in Anthropology, Economics, History, Political Science, Sociology or Spanish/Portuguese. Latin American Studies Concentration students must know Spanish and Portuguese, or have a firm commitment to learn either language. Those students interested mainly in Latin American Studies must take History 282 or 283. Students interested in Caribbean or Hispanic people in the continental United States should take History 282 and Anthropology 276, and/or Latin American 301, Peoples and Cultures of the Caribbean. Students must also take three additional courses chosen with the consent of the student's major advisor and the Concentration Director. One of these three courses consists of the Colloquium taken during the student's senior year, given by all members of the Concentration's faculty. By focusing on a broad topic covering all disciplines, the Senior Colloquium integrates the student's knowledge of Latin America. The Concentration complements its academic offerings with a variety of related films and speakers.

The following courses also fulfill Latin American Studies Concentration requirements:

Anthropology 207	Peasants
Anthropology 276	Peoples and Cultures of the Caribbean
Economics 236	Economic Development
Economics 239	Latin American Economy
History 282	Colonial Latin America
History 283	Latin America, Independence to the Present
History 482	Comparative Slavery: Brazil, Cuba & USA
Interdisciplinary 375	Brazilian Civilization
Latin America 301	Spanish speaking Peoples in Urban America
Latin American 478	Independent Study
Latin American 480	Senior Colloquium
Political Science 371	Latin American Government
Sociology 471	Modernization
Sociology 480A	Imperialism
Spanish 262	Hispanic Masterpieces in Translation
Spanish 364	Spanish-American Essay
Spanish 412	19th Century Spanish American Literature (in Spanish)
Spanish 456	Spanish American Poetry (in Spanish)
Spanish 463	Modern Spanish-American Fiction
Spanish 480	Puerto Rican Poetry and Prose

The Concentration also gives mini-courses on a number of topics, such as The Mayan World, Multinational Corporations, Social Aspects of Caribbean Literature, Comparative Caribbean Economies, and Venezuelan, Peruvian and Chilean Political Change.

Mini-Course, Fall 1978: Women in Latin America; Spring 1979: Writers and Intellectuals in the Cuban Revolution.

Concentration in Law And Justice

The Law and Justice Concentration is an interdisciplinary program with a general liberal arts focus about the law and how it affects people as they live in the real world. Like other concentrations in the College, Law and Justice is a supplement to a student's major.

Requirements for the concentration:

Concentrators will be required to complete at least 23 credits in the program, including:

One of the 2 introductory courses in Law and Justice (The 8-credit Freshman "Foundation" Course or the 4-credit Introduction to Law and Justice; if a student opts for the Foundation Course, only 4 of the 8 credits count towards the Concentration).

At least 9 credits in the core upper-level offerings, including 3 credits in each of the three core areas: Sources, Limits and Functions of Law; Legal Institutions and Procedures; and Forms of Social Justice and Social Ethics.

LAWJUS 108, Program Planning in Law and Justice. This is a 3-credit mini-course in program development.

At least 3 credits in the Senior Year Directed Study Seminar.

The remaining credits, up to the 23, may be departmental courses with a Law and Justice theme or focus. Concentrators will be urged to distribute such departmental courses more or less equally among humanities departments and social science departments. Courses used to satisfy a major requirement may, if appropriate, also be used for the Concentration in Law and Justice.

"A maximum of 7 credits, including the 1-credit mini-course in Program Planning, may be earned through the Law and Justice Mini-Courses to count toward fulfilling the Concentration requirements. A maximum of 6 credits may be earned in field work courses, provided that the field work is sponsored by the Law and Justice Program or, if the field work is departmentally based, that the field work is in a Law and Justice context in order for it to count toward satisfying Concentration requirements. All questions regarding earned credits toward the Concentration through mini-courses or field work courses should be directed to the Law and Justice Advisory Committee, which can be contacted through the Law and Justice Office.

Already Existing Mini-Courses:

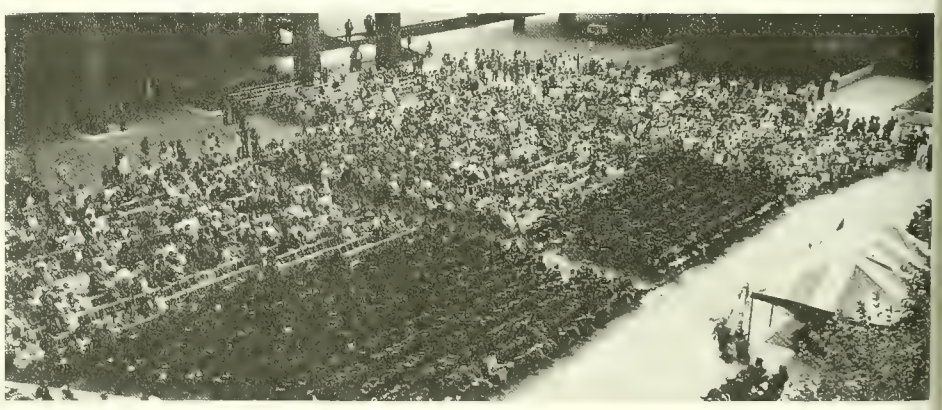
Higher Law and the American Constitution
The Spanish Inquisition
Rights
The Insanity Plea
Employment Discrimination
Legal Analysis
Juries
Law and Psychology
Behavior Modification
Cuban Law and Politics
Love and Marriage
The Legal Profession
The Marriage Game
Sacco and Vanzetti
Justice and Utopia
Plato and Justice
Issues in Justice
Crime Prevention
Correction and Alternatives
Court and Community

Departmentally Based Electives (Partial Selection):

Philosophy of Law
Psychology, Psychiatry and the Law
Sociology of Law
Law and International Relations
Medieval Law
American Detective Novel
Income Distribution and Law

Interdisciplinary Courses in Law and Justice:

LAWJUS 101 Foundation Courses in Law and Justice
104 Introduction to Law and Justice
210 Prisons and Punishment
220 Social Justice
230 Law and Social Change
240 Court and Society
250 Ownership and the Law
260 Authority, Liberty and Law
470 Special Topics
478 Independent Study
500 Senior Year Directed Study Seminar
501 Intern in Foundation Course



Concentration in Linguistics

Linguistics, the study of the structure of language and its functions in phenomena ranging from works of literature to the activity of the brain itself, comprises a natural and unique perspective for interdisciplinary research, an interface between the humanities, the social sciences and even the natural sciences.

Students may pursue a 21-hour concentration which will yield a grounding in linguistics coordinated with their pursuit of major fields of study (or programs of independent study). Given the diversity of topics approachable through linguistic analysis, the concentration should be of equal appeal to students of anthropology, computer science, history, literature, mathematics, physiology, politics, development and clinical psychology, sociology, area and ethnic studies and a variety of other fields.

The concentration will provide specific techniques of analysis of special value to students working in fields which serve persons of different languages or dialects, fields such as public health, education, law, social work and management. It will also prepare students for graduate study in linguistics and in such related disciplines as anthropology, computer science, foreign languages, literary study, medicine, psychology, and speech pathology.

The curriculum of the Concentration in Linguistics is as follows:

Prerequisite: Students may enter the Concentration upon consultation with a member of its faculty no earlier than the start of the sophomore year. There are no specific course prerequisites. Students should check with the Director, or CAS Dean's Office for further information.

Foundation Courses (nine credit hours): The core of the Concentration consists of a sequence of three courses which comprise an intermediate-level introduction to linguistics and its primary modes of analysis:

(Introduction to Linguistics) Humanities 201 or Humanities 203
(Language Across Time) or Anthropology 285
(Language and Culture) or Anthropology 281
(Structure of Human Language).

Phonology: (The Sounds of Language)"Field Methods in Linguistics", a new offering in Anthropology.

Grammar: Humanities 310 (Transformational Syntax).

Language Study: A requirement for graduation in the Concentration is intermediate standing in a non-native language. Concentrators will be encouraged by the linguistics faculty to begin the study of non-Indo-European language to fulfill or supplement this language requirement.

Topics in Linguistics (three credit hours): Students who have completed the three foundation courses will attend this seminar, in which specialized pursuits in linguistics will be explored with the linguistic faculty.

Three-Course Sequence (nine credit hours): Students will complete the Concentration by taking three courses in specific areas of linguistics; they may begin the sequence during or after attending the seminar.

Specific Areas:
- Phonology
- Grammar
- Historical Linguistics
- Natural and Artificial Language and Logic
- Ethnography
- Sociolinguistics
- Stylistics
- Acoustic Phonetics
- Modern Comparative Linguistics

Computing: To gain exposure to the pragmatics of artificial languages and to aid them in their own research, students in the Concentration will be encouraged to study computer programming, chiefly through Mathematics 137 (Introduction to Programming).

Special Dual Major in Psychology and Philosophy

Students with a combined interest in Psychology and Philosophy may elect a directed major in Psychology and Philosophy. This major enables a student to set up an integrated program of study in the two fields according to the following guidelines:

A minimum of 13 courses, 6 from each department, plus a course in directed study to be taken during the final year, are required. Included in these are the following "core requirements":

Philosophy:

100 Introduction to Philosophy
104 Introduction to Logic

Psychology:

101 Introduction to Psychology
102 Introduction to Psychology Research and either
280 History of Psychology or
480 Systems of Psychology

In each case of such a major, the student is required to plan out his program with a team of two advisors, one from each department. This need not be done prior to taking any courses in each department, but should come close to the beginning of the student's stay at UMB. It should be understood that some courses a student may have taken in each department prior to setting up such a major, may not be included in courses that count towards this major, if both advisors feel that the courses cannot be integrated into the student's course of study.

Study of Religion Concentration

The program in the Study of Religion offers a set of courses which concentrate on the religious dimension of human experience. At the nucleus of the Program is a group of courses directly in the study of religion which focus on the fundamental problems and themes of religious experience. This is supplemented by a variety of departmental course offerings which examine religious aspects of literature, art, history, or institutions, as treated by the social sciences and the humanities. This Program seeks to explore critically the culture heritage of religious experience in a fashion which enables students to expand their views of human culture and to find the place of their own history and experience within the framework of a liberal and humanistic education.

The Concentration in the Study of Religion is designed for students who wish to pursue the study of religion in a more systematic way. These students will be assisted and advised by the Committee on the Study of Religion which supervises the Program. A student's program of study in the Concentration must be coherent, balanced, and varied. It must provide for a clearly-defined focus and knowledge of a wide range of religious phenomena. Successful completion of the Concentration is formally acknowledged on student's official records.

Courses in the Study of Religion:

Study of Religion 101 — Introduction to Religion: Symbol, Myth, and Ritual
Study of Religion 122 — Introduction to Religion: Varieties of Religious Experience
Study of Religion 133 — From Fertility Cult to Philosophy
Study of Religion 231 — Religions of India
Study of Religion 232 — Religions of the Far East
Study of Religion 241 — Old Testament, the Religion of Israel and the Ancient Near East
Study of Religion 242 — New Testament, Judaism and Hellenistic Religion
Study of Religion 250 — Varieties of Mysticism
Study of Religion 252 — Sacred Histories and Myth
Study of Religion 255 — Religions of the Oppressed
Study of Religion 264 — Contemporary Religious Thought
Study of Religion 273 — Problems in Religion and Ethics
Study of Religion 276 — Religion and Technology
Study of Religion 478 — Independent Study

Courses closely related to the Study of Religion:
Approaches to Religion through particular disciplines:

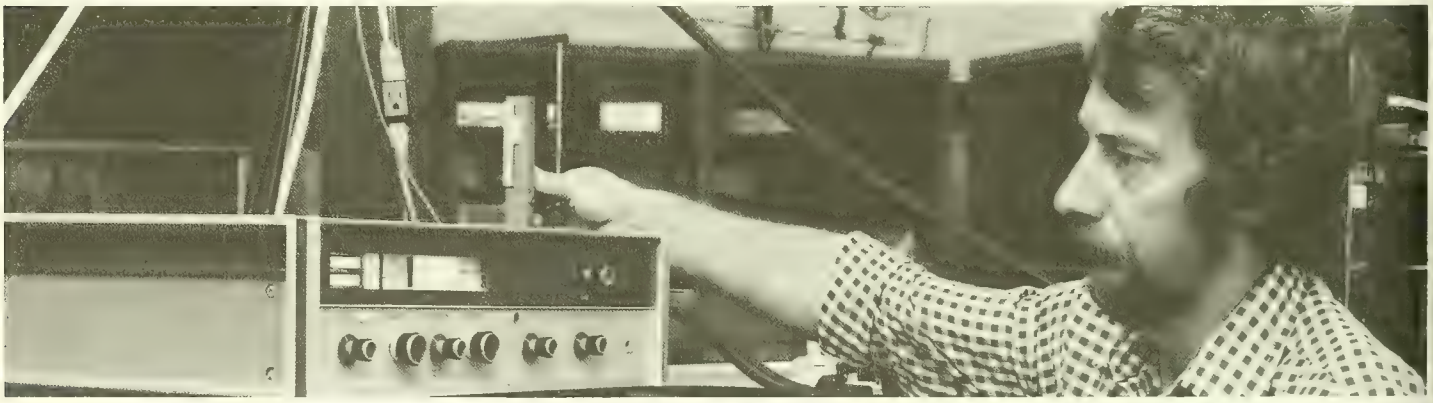
Anthropology 267 — Anthropology of Religion
Philosophy 225 — Philosophy of Religion
Sociology 333 — Sociology of Religion

Religion and Literature:

Classics 284 — Greek and Roman Religion and Myth
English 366 — Milton
English 409 — Jewish American Literature
German 244 — Germanic Mythology
German 270 — Holocaust Literature
Humanities 260 — Visionary and Prophetic Modes in Literature
Humanities 343 — Mythology and Literature
Humanities 345 — Fantasy and Utopia
Italian 279 — Dante's Divine Comedy

Teacher Certification Program

Students seeking careers in education may avail themselves of the services of the Teacher Certification Program. The staff provides information and counseling to all students preparing for teaching careers. In addition, the program enables highly qualified students to satisfy Massachusetts requirements for Teacher Certification. Since UMass-Boston offers no major in Education, a teaching candidate pursues the University's normal degree and major sequences. At the same time, by judicious choice of electives from among those offered by several departments, one may acquire credits in courses approved for certification. The program culminates in the senior year when, under the direction of the faculty of the major department, the student enters student teaching and participates concurrently in a Curriculum and Methods Seminar.



Specific information concerning certification requirements and approved courses is available in the Teacher Certification Program Office.

Elementary Education (Prerequisite: Admission to TCP)
Grades K-6
TCH CER 589: Issues in Elementary School Curriculum
TCH CER 590: Curriculum, Methods, Student Teaching in Elementary Schools

Special Subject Teacher (Prerequisite: Admission to TCP)
Grades K-12
Music 586: Curriculum, Methods, Student Teaching of Music in the Schools
Theatre Arts: 586: Curriculum, Methods, Student Teaching of Theatre Arts in the Schools

Secondary School Teacher (Prerequisite: Admission to TCP)
Grades 7-12
Biology 586: Curriculum, Methods, Student Teaching of Biology in Secondary Schools
Chemistry 586: Curriculum, Methods, Student Teaching of Chemistry in Secondary Schools
Classics 586: Curriculum, Methods, Student Teaching of Latin in Secondary Schools
English 586: Curriculum, Methods, Student Teaching of English in Secondary Schools
French 586: Curriculum, Methods, Student Teaching of French in Secondary Schools
Italian 586: Curriculum, Methods, Student Teaching of Italian in Secondary Schools
Mathematics 586: Curriculum, Methods, Student Teaching of Mathematics in Secondary Schools
Physical Science 586: Curriculum, Methods, Student Teaching of Physical Science in Secondary Schools
Social Science 586: Curriculum, Methods, Student Teaching of Social Science in Secondary Schools
Spanish 586: Curriculum, Methods, Student Teaching of Spanish in Secondary Schools

Students in departments not listed should consult with their departments to determine whether such courses are offered. Not every course is offered every semester of every year.

Library Courses
(Prerequisites: Junior Standing or Permission of Instructor)
In cooperation with the Boston Public Schools Library Program, the University offers two courses through the Teacher Certification Program that may be of general and specific interest to prospective teachers. Admission to TCP is not a prerequisite.

TCH CER 211: The Library and the City Child
TCH CER 212: Books and the City Child

The Program in Translation

The Program in Translation will give students two different routes to gain a foundation in the skill of foreign language translation:

The Concentration in Translation: Students can follow a 20-hour concentration sequence in the translation of a foreign language while pursuing a traditional major such as political science, physics or a standard foreign language major. Their degree will show that not only do they have expertise in their major field but also can function as translators of information into and out of a second language. Students receive a Certificate in Translation.

Translation Option for Foreign Language Majors: One option for students wishing to major in a foreign language is to pursue a self-contained 50-hour sequence of courses focused on translation, an alternative to the standard foreign language curriculum. Students receive an Advanced Certificate in Translation.

The Translation Program is currently being developed in French and German; plans call for the gradual addition of other languages. Students should consult foreign language departments' offerings in this catalogue for information about the specific courses presently available. Students are also encouraged to contact the Director of the Program.

The purpose of this Program is to give students an ancillary skill to their basic education as a career option. In the greater Boston area alone there is need for translators' skills in fields ranging from public service to business and diplomacy. In the medical fields, for example, translators are needed to serve the multi-lingual clientele of the city's hospitals and clinics; public institutions are presently not equipped to serve non-English speakers.

Prerequisite: Both the Concentration and Translation Option for foreign language majors have the same conditions for entrance:

Passage of an examination which tests the student's ability to read and write English or the student's native language.

Completion of a two term sequence of courses in the student's second language, "intermediate language for reading" (offered by the foreign language departments).

Passage of a proficiency examination in the student's second language. Continuance in the program after the sophomore year is contingent upon this examination. The examination is set at the intermediate level of competence within the college level intensive language study program. The attainment of proficiency in the second or "target" language is the student's responsibility, and a working proficiency is required at the start of the junior year. Students are encouraged to attain the proficiency level by studying in a total immersion language program, either at the University, where available or elsewhere in the United States or abroad.

Requirements: The Concentration and the foreign language Translation Option have five requirements in common:

1. A two term sequence of courses in the student's second language on "translation and style", in the context of an advanced collegiate level of language study, an intensive study of grammar of stylistics and composition, focused on problems of idiomatic translation in English and the second language. (Offered by the foreign language departments).
2. A two term sequence of courses in the second language "advanced translation" which will develop further an in depth skill of written translation. (Offered by the foreign language departments).
3. One higher level course in English grammar and its application to writing.
4. One course in the culture and civilization of the student's second language (Offered by the foreign language departments).
5. A comprehensive final examination in translation. The Translation Option for foreign language majors has three additional requirements:
6. A course in lexicology, the origin and meanings of words.
7. Three courses complementing the basic curriculum. This requirement may be met in various ways, subject to approval by the Advisor. For example, courses can include:

— the history of the student's second language
— the sound system of the student's second language
— the dialects of the student's second language
— International Economics
— International Law and Organization
— two terms of a third language

Departmental Courses and Requirements

8. A coherent six course sequence in the student's second language or related fields to complement their basic translation skills, selected with the approval of the director of the program and its advisory board.

Internship: An optional summer or full-year internship may be available to students who wish job experience in translation.

Urban Studies Concentration

The College of Arts and Sciences offers an interdisciplinary program in Urban Studies administered by the following departments: Anthropology, Art, Economics, History, Political Science, Psychology and Sociology.

To graduate with an Urban Studies Concentration, the student, in conjunction with the requirements of a departmental major, takes at least seven courses from the list below (no more than three from any single department). These courses, mainly or wholly addressed to urban issues, allow students to explore the historical and contemporary problems of the city and city-dwellers as perceived by the various disciplines. The cooperating departments will offer an interdisciplinary seminar each spring beginning in 1978. Students will be required to take one seminar. Since not all courses are offered each year, students should check with departments involved. For further information, contact the coordinator.

Anthropology

Anth 209 Urban Anthropology
Anth 258 Anthropology and Social Issues

Art

Art 480 Seminar in 19th and 20th Century Urbanism

Economics

Ec 155 Statistics
Ec 213 Urban Economics
Ec 214 Research in Urban Problems
Ec 243 Political Economy of the Black Ghetto
Ec 318 Economics of State and Local Government

History

Hi 276 United States in the 20th Century I
Hi 277 United States in the 20th Century II
Hi 323 History of Boston
Hi 325 American Social History, 1865-Present
Hi 398 Topics in Boston History
Hi 481 Boston's Immigrants

Political Science

Po 241 Metropolitan Politics
Po 242 Problems in Urban Politics

Psychology

Ps 231 Environmental Psychology
Ps 232 Community Psychology

Sociology

So 221 Urban Community
So 222 Community Organization
So 252 Race and Ethnic Relations
So 327 Stratification

Women's Studies Concentration

Women's Studies at UMass-Boston has grown from a small offering of departmental courses to an interdisciplinary concentration with more than 30 courses, including its own WOST courses taught by its own staff.

The strong interest in Women's Studies at UMB is based on the commitment of women students, faculty and staff to deepen the analysis of the situation of women in our society.

The objectives of the program are to fill out the social picture of humanity and to question and change the present social organization based on the oppression of women. To this end the Women's Studies Concentration encourages the development of new departmental and interdisciplinary courses and attempts to incorporate new perspectives into existing courses.

Women's Studies invites participation of students in planning and evaluation of curriculum and in planning all special activities: speakers, conferences, films and other cultural presentations.

Courses are open to all students. A concentration, like a minor, is in addition to a major field, and will be recorded on the student's transcript. Most courses meet the requirements not only of the concentration but also major and core curriculum requirements.

Seven courses or 21 credits are needed to complete the concentration. Concentrators are required to take the introductory course (or its equivalent) and ought to take at least one other interdisciplinary Women's Studies course (listed as WOST). At least one course must be taken in each of two divisions: the Humanities and the Social Sciences.

About one half of the courses listed below are offered each semester. Independent study and seminars in advanced special topics are available for students who wish to do a directed in-depth study or research project.

Students and faculty, as well as members of the Women's Studies Board serve as advisors and will assist concentrators in planning a program in Women's Studies to fit their areas of interest and need. Students are welcome to come by the Women's Studies office for more information.

Courses in Women's Studies

WOST 100 Women and Society: Introduction to Women's Studies
WOST 200 20th Century Women Writers
WOST 300 Feminist Thought
WOST 350 Women and Imperialism
WOST 400 Research Methods in Women's Studies
WOST 479 Independent Study
WOST 480 Special Topics

Departmental Courses in the Women's Studies Concentration

ANTH 355 Sex Roles and Relationships
ECON 292 Women's Work
ECON 295 Sex-Segregated Labor Markets
ENG 205 Women and Men in 19th Century Literature
ENG 389 Black Women Writers
ENG 440 Contemporary Women Poets
ENG 482 Myth of the Pioneer Woman
FREN 271 The Feminine Presence in French Literature (in translation)
GER 275 Women and Men in German Literature (in translation)
HIST 307 Women in European History from 1700
HIST 361 History of Working Class Women
HIST 362 History of Feminism
HIST 364 History of Feminist Thought
HIST 481 Women in Religious Movements
HUM 373 Women and the Feminine Myth
HUM 382 Homosexuality in Literature
HUM 383 Images of Women in Literature
INTDIS 103 Law and Single Parent
LAWJUS 103Q Women in Prison
PHIL 287 Equality
PHIL 289 Marxist Philosophy
PHIL 481 Philosophical Issues of Feminism
PSYCH 263 Psychology and Women

SOCIO 382 Social Psychology of Sex Roles
SOCIO 451 Field Methods
SOCIO 475 Socialization
SOCIO 485 Single Parent Family
THR ART 240 Women in Theatre

AMERICAN CIVILIZATION

301A Pioneer Women and Men: The Myth and the Reality
This course is an interdisciplinary course which through images of pioneer women and men (especially the Nebraska fiction of Willa Cather), art, and history of the 1880's in the American Midwest, will attempt to define the myth and determine its relationship to reality and to similar myths about male heroes. Cather's purpose in creating her version of the myth will involve studies of her life and works in the 1910-1940 period. Students will be asked to work on a project in any one of three disciplines and to prepare a version of the project for class discussion.
Prerequisite: Junior or Senior standing
3 Lect Hrs 3 Credits
Ms. Ferguson

301B The Concept of Culture and the Study of the City
An introduction to the concept of culture as a tool of interdisciplinary studies. The meanings of 'culture,' some alternative ways of defining and using it, and the effects of those uses will be explored through specific texts about the city in general and Boston in particular. The course will begin with readings in the concept of culture and John Wilson's thinking with concepts, and will continue with the following representative works: Lewis Mumford's *The Culture of Cities* ('Social Philosophy'), Oscar Handlin's *Boston's Immigrants* (Social History), or Sam Bass Warner's *Streetcar Suburbs* (Urban History), Henry James's *The Bostonians* (Fiction) Herbert Gans's *The Urban Villagers* (Urban Sociology), and Martin Green's *The Problem of Boston* ('Culture Criticism').
Prerequisite: Junior or Senior standing
3 Lect Hrs 3 Credits
Mr. Katz

301C Charlestown: The Historical Study of an Old Neighborhood
Charlestown as a 'place,' that is, as a neighborhood within the city, whose residents possess a sense of identity shaped by common memories resonant in their streets, cemeteries, buildings, and monuments. Central to the course will be the role of the Bunker Hill Monument as the single most enduring stimulus to this sense of place. Oren McCleary's film on Charlestown will be viewed; readings in Durrell's *'Landscape and Character,'* Chandler's *Little Sister*, Firey's *Land Use In Central Boston*, Handlin's *Boston's Immigrants*, Warner's *Streetcar Suburbs*, Washington's *History of The Bunker Hill Monument Association*, Zukowski's *'Monumental American Obelisks,' Zones of Emergence*, and *The rehabilitation Planning Game*.
Prerequisite: Junior, Senior or Graduate standing and Permission of instructor
3 Lect Hrs 3 Credits
Mr. Brown

301D The New South: A Study in American Regionalism
The development and transformation of the South, perhaps this country's most distinctive region, whose recent history has been marked by conflict with, and accommodation to, the American mainstream. The colloquium will include a review of Southern history, history since reconstruction, an examination of the key changes in class alignments and black-white relationships, and consideration of the 'Southern novel.' The course will aim at a better assessment of the new political and economic realities which are making possible new 'Articles of Conciliation' in the deployment of national power. Readings from such works as Cash, *The Mind of the South*, Dubois, *The Souls of Black Folk*, Reed, *The Sociology of the South*, Sale, *Power Shift*, Key, *Southern Politics*, Silver, *Mississippi*, Franklin, *From Slavery to Freedom*, Woodward, *The Burden of Southern History*, Murray, *The Omni Americans*, Goodwyn, *Democratic Promise*, Bontemps and Conroy, *Anyplace But Here*.
Prerequisite: Junior or Senior standing
3 Lect Hrs 3 Credits
Mr. Robbins

301E Aliens and Anglo-Saxons: The Immigrant in American Society, 1880-1924
Through letters, plays, short stories, novels, movies, and social and historical studies, this course will explore the issues raised by native Americans and immigrants who were involved in defining the often agonizing process of becoming an American. We will look at the impact of immigration on concepts of 'American character' and culture in the works of such writers as Jane Addams, Abraham Cahan, Ole Rolvaag, Oscar Handlin, Peter Finley Dunne, and others. Students will have the option of using their own family history as part of their primary research materials.
Prerequisite: Junior or Senior standing
Ms. Rudnick 3 Credits

501 History and Culture of Nantucket Island
An introductory, interdisciplinary seminar surveying the social, political, cultural and commercial history of Nantucket Island, from its earliest settlements to the present day.
Prerequisite: Admission to Nantucket Program
6 Lect Hrs/Wk for 6 Weeks 3 Credits
Mr. Stackpole

502 Natural Environments of Nantucket Island
Introduction to the unique natural history of Nantucket and to general ecological principles, emphasizing the relationship of human history to island ecology and the variety of biotic habitats. Field trips required.
Prerequisite: Admission to Nantucket Program
3 Lect Hrs, 3-4 Field Hrs/Week
for 6 Weeks 3 Credits
Mr. Tiffney

510 Methods of Interdisciplinary Research on Nantucket Island
Introduction to research and methods for interdisciplinary inquiry on Nantucket, utilizing primary source materials and cultural artifacts. UMB and on-island scholars will participate in the seminar to discuss their research and that of others. Weekly conferences with program director and field trips to Nantucket Research Center required.
Prerequisite: Admission to Nantucket Program
1 Lect Hr, 3 Disc Hrs 3 Credits
Staff

520 Independent Study and Research on Nantucket Island
Prerequisite: Admission to Nantucket Program
Hrs by arrangement 3 Credits
Staff

521 Nantucket Research Project
An intensive program of independent study of an appropriate Nantucket subject, utilizing island research resources and planned with a faculty advisor who will provide necessary counsel and guidance. Must conform to relevant departmental guidelines and standards. Periodic conference with program director and consultation with faculty advisor required.
Prerequisite: Admission to Nantucket Program
Hrs. by arrangement 3 Credits
Staff

ANTHROPOLOGY

Faculty

Frederick C. Gamst, Professor, Chairperson; Professor David Landy; Associate Professors Barbara Ayres, Golamreza Fazel, Alan Harwood, Charles M. Nelson; Assistant Professors Stuart F. Berde, Naomi Bishop, Michael F. Gibbons, Jr., Lawrence S. Greene, Barbara E. Luedtke, Gerald Murray, R. Timothy Sieber, Michiko Takaki

Major Requirements

Introductory Courses

All majors are required to take Anthropology 102, Introduction to Archaeology and Biological Anthropology, and Anthropology 103, Introduction to Cultural Anthropology. Each is a prerequisite to most related, advanced Anthropology courses and ordinarily should be taken during the Freshman or Sophomore year.

Core Courses

All majors are required to take three core courses in Cultural Anthropology, Linguistics, Biological Anthropology and Archaeology. The distribution of the three courses among these four subdisciplines must be as follows:

A. Social and Cultural Anthropology: All majors are required to take *either* Anth 250 (Social Organization) *or* Anth 251 (Comparative Ethnology).
B. Majors are required to take at least *one* of the following courses from *each of two* of the remaining three subfields of Anthropology:
   1. Linguistics: *either* Anth 281 (The Structure of Human Language) *or* Anth 285 (Language and Culture);
   2. Biological Anthropology: Anth 210 (Biosocial Bases of Human Behavior) *or* Anth 211 (Human Origins) *or* Anth 212 (Human Variation);
   3. Archaeology: Anth 241 (Archaeological Method and Theory), *or* Anth 233 (New World Prehistory), *or* Anth 234 (Old World Prehistory), *or* Anth 240 (Historical Archaeology).

These courses are designed to introduce the student to basic concepts in the subdisciplines and ordinarily should be taken after Anth 102 or 103 and before more advanced courses in the particular subdiscipline.

Distribution Requirements

Majors are required to take a minimum of three advanced courses in one subdiscipline and two advanced courses in another, e.g., three courses in social and cultural anthropology and two in biological anthropology, or three in archaeology and two in biological anthropology, etc. The core courses count toward this requirement.

For purposes of meeting these distribution requirements, courses are classified as follows:

A. Courses in Social and Cultural Anthropology:

   Courses in social institutions include: Anth 250 (Elements of Social Organization), Anth 251 (Comparative Ethnology), Anth 261 (Economic Systems of Non-Industrialized Societies), Anth 264 (Power and Conflict in Non-Western Societies), Anth 267 (Anthropology of Religion), Anth 350 (Kinship).

   Courses in cultural types include: Anth 206 (Hunter-Gatherer Cultures), Anth 307 (Peasants), Anth 209 (Urban Anthropology), Anth 262 (Pastoral Nomadism).

   Topical courses include: Anth 254 (Psychological Anthropology), Anth 255 (The Anthropology of Education), Anth 357 (Culture, Disease and Healing), Anth 258 (Anthropology and Social Issues), Anth 263 (Cultural Ecology), Anth 355 (Sex Roles and Relationships), Anth 390 (Developmental Anthropology).

   Courses in method and theory includes: Anth 430 (Methods of Cross-Cultural Research), Anth 383 (Anthropological Theory), Anth 420 (Ethnological Field Methods and Techniques).

   Area courses which describe the peoples and cultures of a particular geographical region includes: Anth 231 (The Prehistory and Ethnohistory of Mesoamerica), Anth 270 (Peoples and Cultures of Mesoamerica), Anth 271 (Indians of North America), Anth 272 (Cultures of Oceania), Anth 273 (Peoples and Cultures of Africa), Anth 374 (Afro-American Ethnology), Anth 275 (Peoples and Cultures of East Asia), Anth 279 (Peoples and Cultures of the Middle East). No more than *two* of these area courses may be counted toward the major.

B. Courses in Linguistic Anthropology:

   Anth 281 (The Structure of Human Language), Anth 285 (Language and Culture), Anth 385 (The Ethnology of Speaking).

C. Courses in Biological Anthropology:

   Anth 210 (Biosocial Bases of Human Behavior), Anth 211 (Human Origins), Anth 212 (Human Variation), Anth 214 (Primate Behavior), Anth 411 (Primate Anatomy), Anth 316 (Nutrition, Growth and Behavior), Anth 360 (Primate Socialization).

D. Courses in Archaeology:

   Anth 332 (The Prehistory of Eastern North America), Anth 233 (New World Prehistory), Anth 234 (Old World Prehistory), Anth 235 (Africa Pre and Protohistory), Anth 241 (Archaeological Method and Theory), Anth 337 (Prehistoric Agriculture), Anth 485 (Field Seminar in Archaeology).

Total Number of Courses Required

To complete the major, eight courses beyond the introductory level must be completed with a grade of C or better.

Grade Point Average

A grade point average of 2.0 is required for the major.

Pass/Fail Option

With the exception of a few special courses (Anth 478, 479, 483, 484, 485, 490 and 491) anthropology courses may be taken pass/fail for credit towards the B.A. degree. Courses taken pass/fail *may not*, however, be used to satisfy requirements towards the Anthropology Major.

Transfer of Credit

At least five of the eight advanced courses required for the anthropology major must be taken at UMB, but additional anthropology courses may be transferred for general university credit towards the B.A. degree.

Courses Repeated for Credit

The Anthropology Department offers a number of special courses (Anth 478, 479, 480, 483, 484, 485, 490 and 491) which may be repeated for credit as the focus of each course shifts. Unless otherwise stipulated in the course description, such a course may be repeated twice for credit towards the Anthropology Major and as many times as desired for credit toward the B.A. degree.

Honors Program

The Anthropology Department maintains an Honors Program for exceptionally gifted majors. This program involves two semesters of intensive work leading to the presentation of an honors thesis. For further information, please contact your Anthropology advisor.

Contributions to Related Programs

The Department of Anthropology contributes courses to the Concentration and Interdisciplinary Programs listed below. For further information please contact the Anthropology Department or the special program in which you are interested:

American Civilization
Biobehavioral Studies
Latin American Studies
Law and Justice
Linguistics
Religious Studies
Teacher Certification Program
Urban Studies
Women's Studies

Departmental Committees

Majors are encouraged to participate in committees dealing with curriculum and a variety of other departmental policies and activities.

Anthropology Society

There is an Anthropology Society, run by Anthropology Majors, which organizes a wide variety of activities of interest to students. These include the election of students to departmental committees, guest lecturers, discussion panels, participation in professional meetings, field trips and parties.

Departmental Facilities

The Department of Anthropology employs a wide variety of laboratory facilities and special collections in its undergraduate program. These include well equipped laboratories for biological anthropology and archaeology, a photolab and dark room, a map and drafting room, and a complete Human Relations Area File which contains many thousands of cross referenced works on hundreds of cultures throughout the world.

102 Introduction to Archeology and Biological Anthropology
The study of the biological and cultural heritage of humans. Topics include: primate and human evolution, human adaptation and variation and the evolution of prehistoric cultures. Note: Enrollment in this course is not permitted for students who have already completed Anthropology 101.
3 Lect Hrs 4 Credits
Staff

103 Introduction to Cultural Anthropology
The study of recent and contemporary human societies in cross cultural perspective. Ethnographic accounts are used to analyze and compare variations in cultural adaptations and processes of culture change. Note: Anth 102 is not a prerequisite to Anth 103. Note: enrollment in this course is not permitted for students who have already completed Anthropology 101.
3 Lect Hrs 4 Credits
Staff

206 Hunter-Gatherer Cultures
Study of the hunter-gatherer form of human adaptation. Ethnographic data from hunter-gatherer cultures will be examined, and models derived from this data will be applied to the archaeological evidence for prehistoric hunter-gatherers.
Prerequisite: Anth 101, Anth 102, or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Luedtke

209 Urban Anthropology
A comparative study of the form and quality of urban life in selected Western and non-Western cultures.
Prerequisite: Anth 101 or 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Harwood, Mr. Sieber

210 Biosocial Basis of Human Behavior
The biological basis of human behavior, evolutionary principles, studies of animal behavior, primate studies, genetic variability in human populations today, evaluation of current theories of man's biological nature and heritage.
Prerequisite: Anth 101 or Anth 102 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Bishop

211 Human Origins
An introduction to the study of man's biological origins with emphasis on the fossil record, primate analogues of human behavior, and the variety and diversity of modern man including the adaptive significance of this variation.
Prerequisite: Anth 101 or Anth 102 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Gibbons

212 Human Variation
A consideration of the factors involved in the production and maintenance of biological variability within and between human populations.
Prerequisite: Anth 101 or both Anth 102 and 103 or Anth 102 and permission of instructor
3 Lect Hrs 3 credits
Mr. Greene

214 Primate Behavior
A broadly based survey of nonhuman primates as found in their natural habitats with emphasis on the significance of these studies as comparative evidence in the formulation of a general theory of the origins of human behavior.
Prerequisite: Anth 101 or Anth 102 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Bishop, Mr. Gibbons

231 The Prehistory and Ethnohistory of Mesoamerica
The course traces Mesoamerican prehistory from formative to postclassic time periods, the Spanish Conquest and subsequent acculturation among Indian peoples, Europeans and Africans in Mesoamerica. The natural areas, indigenous culture areas and linguistic areas will be introduced.
Prerequisite: Anth 101 or Anth 102 or Anth 270 or Hist 282 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Kaplan

233 New World Prehistory
A broadly based survey of prehistoric societies in North and South America from the peopling of the New World to the period of initial European contact, including the application of archaeological materials to the reconstruction of culture history and the interpretation of con-

temporary problems in American Indian societies.
Prerequisite: Anth 101 or Anth 102 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Luedtke

234 Old World Prehistory
A consideration of the prehistory of Africa, Europe, Asia and Australia, from the origins of man's cultural adaptation to the agricultural revolution.
Prerequisite: Anth 101 or Anth 102 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Nelson

235 African Pre and Protohistory
The archeological record of Africa from the earliest human technologies, more than two million years ago, to the colonial period. Geographic focus on sub-Saharan Africa and Ethiopia. Equal attention given to early prehistory, the Iron Age, and the protohistoric emergence of African states.
Prerequisite: Anth 101 or Anth 102 or Hist 117 or permission of instructor. Anth 241 recommended for majors
3 Lect Hrs 3 Credits
Mr. Nelson

240 Historical Archeology
An introduction to historical archeology, from its initial development to future directions. Topics will include: the subfields which comprise historical archeology and their interrelationships; the contributions, both substantive and methodological, of historical archeology to the field of archeology; and industrial and historic sites archeology in North America.
Prerequisite: Anth 102 or Hist 384 (American Social Hist to Civil War) or permission of instructor
3 Lect Hrs 3 Credits
Ms. Spencer-Wood

241 Archaeological Method and Theory with Laboratory
An introduction to the theory and application of archaeological methods. Emphasis is placed on the ways in which archaeologists view prehistory and the techniques by which data are gathered, interpreted and integrated to complete a coherent picture of prehistoric events. The lab focuses on practical skills and methods archaeologists commonly employ in the field and laboratory.
Prerequisite: Anth 101 or Anth 102 or Physics 133 or permission of instructor
3 Lect Hrs, 3 Lab Hrs 4 Credits
Ms. Luedtke, Mr. Nelson

250 Elements of Social Organization
Basic concepts and ethnographic data on the social organization of non-Western societies will be introduced and used to explore major contemporary theories of social structure.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Ayres, Mr. Berde, Mr. Harwood

251 Comparative Ethnology
A systematic comparative approach to description and analysis of culture types and culture areas. Intensive comparative analysis of representative cultures and social structures with special reference to theories of ecological adaption and sociocultural evolution.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Ayres, Mr. Gamst

254 Psychological Anthropology
A consideration of interrelationships between personality and culture. The effects of culturally patterned experience on personality formation. The role of psychological processes as determinants of culture.
Prerequisite: Anth 101 or Anth 103 or Psy 101 or permission or instructor
3 Lect Hrs 3 Credits
Ms. Ayres, Mr. Landy

255 The Anthropology of Education
Anthropology's cross-cultural, holistic, and evolutionary perspectives are brought to bear on the study of educational practices and institutions in a variety of sociocultural settings — traditional, modernizing, and complex, including the urban USA. Although account is taken of other stages in the individual life cycle, the primary concern is with cultural transmission and enculturation during the periods of later childhood and adolescence, particularly within the setting of formal schooling. Special attention will be given to problems of cultural conflict in the schools of modernizing and complex societies.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Sieber

258 Anthropology and Social Issues
Examines a number of modern social issues, including racial prejudice and conflict, the place of ethnic minorities in modern industrial society, poverty, education, violence, behavioral deviance, environmental pollution and degradation, and colonialism. Anthropological and other behavioral science studies are brought to bear upon these problems as social issues and as ethical issues for anthropologists and others.
Prerequisite: Anth 101, Anth 103 or other Intro Social Science or permission of instructor
3 Lect Hrs 3 Credits
Mr. Landy

261 Economic Systems of Non-Industrialized Societies
The study of pre-industrial and peasant nonmonetized, non-Western economic systems. The relationships between economy and sociocultural systems.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Berde, Mr. Fazel

262 Pastoral Nomadism
A comparative study of the social, economic and political organization of nomadic pastoral peoples of the Middle East, Central Asia and North Africa. Of special concern are — A. The organizational adaptations of nomads to various ecological systems, and, B. The processes of socio-cultural change including settlement de-tribalization and modernization.
Prerequisite: Anth 101or Anth 103 or permission of instructor
3 Lect Hrs 3 Credit
Mr. Fazel

263 Cultural Ecology
The interrelationships among human populations, human institutions, and their physical environment.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credit
Mr. Fazel

264 Power and Conflict in Non-Western Societies
A comparative approach to pre-industrial and non-Western political organization considered as parts of sociocultural systems. Emphases include political activity, competition for power and authority, leadership, decision making, types of political systems, dynamics o

change, archaic rebellions, etc.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Berde, Mr. Fazel

267 Anthropology of Religion
A comparative study of religion, including belief systems, ritual and myth.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Harwood

270 Peoples and Cultures of Mesoamerica
Survey of Mesoamerican ethnology including an introduction to cultural and linguistic regions by the use of comparative ethnographic materials. Acculturation during the colonial period among indigenous and Spanish speaking populations and social change among rural and urban sectors in the contemporary period will be emphasized.
Prerequisite: Anth 101, Anth 102 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Kaplan

271 Indians of North America
An introductory survey of North American Indian societies and culture. Emphasis will be placed on the descriptive comparison of selected Indian societies through the study of North American culture areas, levels of sociocultural integration, places of Indian history, and contact with Euro-American culture.
3 Lect Hrs 3 Credits
Mr. Berde

272 Cultures of Oceania
A broadly based survey of the history, ethnography, and modernization of Oceania, including Micronesia, Polynesia and Australia.
3 Lect Hrs 3 Credits
Mr. Berde

273 Peoples and Cultures of Africa
In-depth study of selected African societies, examining traditional institutions, the colonial situation, and modernization.
3 Lect Hrs 3 Credits
Mr. Harwood

275 People and Cultures of East Asia
An overview of the development of civilizations of China and Japan. Emphasis on understanding norms, values and behavioral patterns of these peoples in pre-modern and contemporary periods. Discusses kinship, religion, literature, urban and rural life. Intellectual thrusts, and organized action.
3 Lect Hrs 3 Credits
Staff

276 Caribbean Peoples
An ethnographic and historical overview of the Caribbean, examining the impact of external forces on local economic organization, domestic life, religion, and migration. Special attention will be given to the islands of Puerto Rico, Hispaniola, Cuba, and Jamaica.
Prerequisite: Anth 103 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Murray

278 Communities and Subcultures of USA
A consideration of a range of communities in the U.S.A., their interrelations through wider subcultures of class, ethnicity, caste, occupation, and region. And their relationship to the nationstate.
Prerequisite: Junior or Senior standing
3 Lect Hrs 3 Credits
Mr. Sieber

279 Peoples and Cultures of the Middle East
Survey of Middle Eastern ethnology, an anthropological approach to the contemporary Middle East, with special emphasis upon nomadic and peasant populations.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Fazel

280 Special Topics
Study of special topics, varying according to instructor.
Prerequisite: Anthropology 101 or either 102 or 103 (as appropriate) or permission of instructor
3 Lect Hrs 3 Credits
Staff

281 Structure of Human Language
Concepts and methods for analyzing the structures and rules by means of which speakers of any language unconsciously pattern their speech behavior. Strategies for identifying phonological and syntactic structures will be presented, as well as a theoretical perspective for assessing contemporary trends in generative linguistics and ethnoscience.
Prerequisite: Sophomore standing
3 Lect Hrs 3 Credits
Mr. Murray

285 Language and Culture
An examination of the relationships between language and culture, with special emphasis on the relevance of linguistic analysis and the study of speech as social behavior to problems of anthropology.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Takaki

307 Peasants
Anthropological approaches to the origins and contemporary lifeways of peasant sectors of stratified societies in different world regions and at different historical periods. Analysis will move from ethnographic studies of particular peasant communities to their relationship with external political and economic forces, and to a consideration of the spectrum of competing ideological approaches to technological and social change. In a given semester the course may focus upon the peasants of a particular world region, such as Latin America.
Prerequisite: Anth 101 or 102 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Kaplan, Mr. Murray, Mr. Gamst

316 Nutrition, Growth and Behavior
An evaluation of the influence of nutrition on growth and development in human populations. Particular emphasis on malnutrition and its effect on physical growth, neurological development and behavioral capacity. A model is developed which outlines the relationship between nutritional stress, the behavioral variation produced as a consequence of the stress, and the sociocultural characteristics of human communities.
Prerequisite: Anth 101 or both Anth 102 and 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Greene

332 The Prehistory of Eastern North America
This course concentrates on the archeology of the area, but includes a discussion of the historic Indians. It will also be concerned with environmental differences and their effects on native cultures.
Prerequisite: Anth 101 or 102 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Luedtke

337 Prehistoric Agriculture
This course examines the origins and conse-

quences of the agricultural revolution in both the Old World and the New World.
Prerequisite: Anth 101, Anth 102, Biol 610 or Biol 613 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Nelson

350 Kinship
Basic concepts and ethnographic data on kinship in Western and non-Western societies will be introduced and used to highlight major contemporary approaches to the study of social structure.
Prerequisite: Anth 101 or Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Harwood, Ms. Takaki

355 Anthropology of Sex Roles
A cross cultural survey of variation in sex roles from the perspective of evolutionary biology, with special attention given to the role of ecological factors in determining the cultural definition and patterning of 'masculinity' and 'femininity.'
Prerequisite: Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Ayres

357 Culture, Disease and Healing
Human adaptations to disease and illness in prehistory, history and across cultures. Medical systems considered as social and cultural systems related to social structure, religion, economics, and power. Topics include medical anthropology as a field of study, paleopathology, ecology and epidemiology of disease, theories of disease and healing, sorcery and witchcraft, public health and preventive medicine, anatomy and surgery, obstetrics and population control, pain and stress, emotional states, status and role of healers and patients.
Prerequisite: Anth 101 or 103 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Landy

360 Primate Socialization
The relations between non-human primate infants and other troop members will be examined. The focus will be on how special experiences from infancy until adulthood shape an individual's future, social behavior. Topics discussed will include: critical periods, attachment formation, sex differences and acquisition of sex roles, play behavior, aunting and other care-taking behaviors.
Prerequisite: Anth 101 or Anth 102 and Anth 214 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Bishop

374 Afro-American Ethnology
This course surveys and documents the significant contributions to Latin American and Caribbean cultures made by African-derived populations in the New World, utilizing ethnographic and historic sources. Theoretical approaches used in Afro-American ethnology will be critically examined. Cultural diversity and unity among Afro-American populations in a variety of Creole and other cultures will be examined.
Prerequisite: Anth 101 or 102 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Kaplan

383 Anthropological Theory
Survey of the major theoretical positions and concepts in social and cultural Anthropology, with special reference to problems of structure, function and process.
Prerequisite: Anth 101 or both Anth 102 and Anth 103 or permission of instructor
3 Lect Hrs 3 Credits
Staff

385 The Ethnography of Speaking
The course will introduce concepts and methods for studying 'speaking' the use of language in the conduct of social life. Members of a speech community employ varieties of speech to accomplish different social functions, and the dynamic interaction between linguistic and social factors in speaking will be the primary focus of this course. Special attention will be directed to contemporary social problems associated with multilingual and multidialectical phenomena. Students will undertake a limited research project to further their understanding of these problems and their possible solution.
Prerequisite: Anth 285 or permission of instructor
3 Lect Hrs. 3 Credits
Ms. Takaki

390 Developmental Anthropology
An anthropological consideration of ideas and data concerning modernization, development and impediments to these, in nonindustrial states. Topics covered include demographic change, long term developmental projections, global ecology, imperialism, Third World reactions, agricultural development, industrialization, the underdevelopment of the social science of development, and energy and modernization.
3 Lect Hrs 3 Credits
Mr. Gamst

411 Primate Anatomy
Comparative anatomy of the primates with emphasis on dissection in order to ascertain the functional, i.e. biochemical, interrelationships of primate musculo-skeletal systems. This comparative evidence will be used as a basis for interpreting the fossil record of man.
Prerequisite: Permission of instructor
3 Lect Hrs, 3 Lab Hrs 4 credits
Mr. Gibbons

420 Ethnological Field Methods and Techniques
Intensive study and application of ethnological field methods and techniques. Consideration of design of research and of gathering, interpreting, and reporting ethnographic data.
Prerequisite: At least three upper level courses in social and cultural Anthropology
3 Lect Hrs 3 Credit
Mr. Gamst

430 Methods of Cross-Cultural Research
An introduction to the theory and method of cross-cultural research. Practice in the design and implementation of a limited cross-cultural study.
Prerequisite: Two advanced courses in Anthropology or permission of instructor
3 Lect Hrs 3 Credit
Ms. Ayres

478 Directed Study I
Advanced students may conduct independent research under the supervision and guidance of members of the faculty.
Prerequisite: Anth 101 or Anth 102 and/or Anth 103 (as appropriate) and permission of instructor
Hrs by Arrangement 3 Credi
Staff

479 Directed Study II
Advanced students may conduct independent research under the supervision and guidance of members of the faculty.
Prerequisite: Anth 101 or Anth 102 and/or Anth 103 (as appropriate) and permission of instructor
Hrs by Arrangement 3 Credi
Staff

480 Special Topics Seminar I
ntensive study of special topics, varying each ear according to instructor.
Prerequisite: Anth 101 or Anth 102 and/or Anth 103 (as appropriate) or permission of instructor
3 Lect Hrs 3 Credits
Staff

481 Special Topics Seminar II
ntensive study of special topics, varying ac-ording to the instructor.
Prerequisite: Anth 101 or Anth 102 and/or Anth 03 (as appropriate) or permission of instructor
Lect Hrs 3 Credits
taff

483 Field Research in Anthropology I
upervised sequence of field research within ne of the subdisciplines of Anthropology, iological Anthropology, Archaeology, ocial-Cultural Anthropology, Linguistics. ontinuous study in a field situation directed by professional anthropologist. Grading on a ass/Fail basis. May include attendance at field chools directed by qualified faculty outside the niversity with permission of the students' de-artment. A student may receive a maximum of x credits toward the major.
rerequisite: Anth 101 or Anth 102 and/or Anth 03 (as appropriate) or permission of instructor
ix weeks of continuous
eld research 3 Credits
taff

484 Field Research in Anthropology II
upervised sequence of field research within ne of the subdisciplines of Anthropology, iological Anthropology, Archaeology, ocial-Cultural Anthropology, Linguistics. ontinuous study in a field situation directed by professional anthropologist. Grading on a ass/Fail basis. May include attendance at field chools directed by qualified faculty outside the niversity with permission of the students' de-artment. A student may receive a maximum of x credits toward the major.
rerequisite: Anth 101 or Anth 102 and/or Anth 03 (as appropriate) or six weeks of Continuous eld Research 3 Credits
aff

485 Field Seminar in Archaeology
specialized, advanced seminar focused on oblems and issues in field research such as icrostratigraphy, site survey and excavation mpling, and archaeological resource man-ement. May be repeated for credit up to a aximum of 20 credits, but only one seminar of 3 or more credits will be accepted to satisfy requirements for the major. If Anthropology 485 is accepted as one course requirement toward the major, only three credits in Anth 483 or 484 will also be permitted toward fulfillment of major requirements. Such seminars are given only occasionally as faculty and financial resources permit. See departmental secretary in Bldg 020 for further information.
Prerequisite: Permission of instructor
Hrs by Arrangement (Credits Variable with Dept. Approval) 3-10 Credits
Ms. Luedtke, Mr. Nelson

490 Independent Research I
Prerequisite: Senior status, 4 upper level courses in Anthropology, 3.5 GPA in major, 3.0 GPA overall and permission of an Honors Advisor
Staff

491 Independent Research II
Prerequisite: Anth 490 and permission of the Students' Honors Committee
Hrs by arrangement 3 Credits
Staff

Tutorials in Anthropology
Optional programs of intensive study taken in conjunction with any regular upper division class and centered around a special topic related to the subject matter of the course. Tutorials involve regular meetings of the instructor and student together with appropriate reading and writing assignments. Work undertaken in the tutorial is in addition to and graded separately from the regular course work.
Prerequisite: Permission of instructor
Hrs by Arrangement 1 Credit
Staff

ARMENIAN

101 Elementary Armenian I
For students with no previous knowledge of Armenian. Intensive practice in language skills with introductory readings, writing and basic grammar.
4 Lect Hrs 4 Credits
Ms. Batmasian

102 Elementary Armenian II
A continuation of Armenian 101. For students with no previous knowledge of Armenian. Intensive practice in language skills with introductory readings, writing and basic grammar.
4 Lect Hrs 4 Credits
Ms. Batmasian

201 Intermediate Armenian I
Emphasis on advanced grammar — Declension of nouns and conjugation of verbs, coupled with development of translation skills through reading exercises.
Prerequisite: Armenian 102 or equivalent
3 Lect Hrs 4 Credits
Ms. Batmasian

202 Intermediate Armenian II
Emphasis on advanced grammar-declension of nouns and conjugation of verbs, coupled with development of translation skills through reading exercises and composition.
Prerequisite: Armenian 201 or equivalent
3 Lect Hrs 4 Credits
Ms. Batmasian

301 Advanced Armenian
Advanced readings in Armenian literature, history and civilization.
Prerequisite: Elementary and intermediate Armenian or permission of instructor
3 Lect Hrs 3 Credits
Ms. Batmasian

302 Advanced Armenian
Continuation of Armenian 301. Advanced readings in Armenian literature, history and civilization.
Prerequisite: Armenian 301
3 Lect Hrs 3 Credits
Ms. Batmasian

303 Advanced Readings, Conversation, Composition and Translation
To be offered to students who complete the Armenian course sequence.
May be offered as an Independent Study.
Prerequisite: Armenian 302 (Advanced Armenian)
3 Lect Hrs 3 Credits
Ms. Batmasian

ART

Faculty
Ruth Butler, Professor, Chairperson; Professor Bates Lowry; Associate Professors Renee M. Arb, Ros Barron, Frances Fergusson, Robert Risse, Harold Thurman, Assistant Professors Joseph Cervera, Marcia Lloyd, Ben C. Peterson; Lecturer Karen Smiley; Part-time Lecturers Henry Horenstein, Ann R. Milstein, Lawrence P. Nees, Geoffrey Rogers, Linda Sevey, Birgit Shell, Charlotte Shoemaker; Adjunct Associate Professor Sheila L. Weiner

Requirements for graduation

The Art Department is presently revising graduation requirements for majors which may affect the Class of 1982, particularly in regard to the number of courses required. At present, majors in Art are required to take ten courses including an introductory level course in art history and creative work and a minimum of eight advanced courses which collectively provide a distribution among historical styles and media acceptable to a departmental advisor. Each student will work with an advisor in planning a sequence of courses which will suit his/her background and goals. Guidelines for the major and expanded course descriptions are available each semester in the Department office.

With Department approval students who have done distinguished work in Art may qualify for the honors program. Interested students should consult with the Department Chairperson before pre-registration during the third semester prior to graduation.

100 Introduction to the Language of Art
The nature of form, content, technique, and style in painting, sculpture, architecture, and graphic arts. Designed to sharpen the student's response to original works. Museum meetings alternated with lecture/discussions on key problems.
3 Lect Hrs 4 Credits
Staff

175 Visual Fundamentals
Development of visual awareness through projects, lectures, discussions which use the camera and other media as a means of establishing new and creative relationships with a visual environment.
4 Combined Lect/Studio Hrs 4 Credits
Staff

195 Introduction to Film Analysis
A non-historical course intended to provide an understanding of the elements of film language. The basic film genres and certain major film styles. Intensified examination of a few selected films representing narrative, documentary and experimental techniques through the study of scripts, the use of replay and the analysis of film excerpts.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Mr. Risse

201 Ancient and Medieval Art
The course will offer an historical survey of the art and architecture of the ancient world giving particular emphasis to Egyptian, Greek, and Roman cultures, from mid-semester to the end of the course, the students will be introduced to the arts in Medieval Europe with a special focus upon the Romanesque and Gothic styles.
3 Lect Hrs 3 Credits
Mr. Cervera

202 Renaissance to Modern Art
An historical survey of Western art and architecture from the 15th century to the 20th century. The course will deal with different aspects of the art of: the Renaissance in Italy and the North, the Baroque and Rococo, Neoclassicism and Romanticism and Impressionism, Post Impressionism and twentieth century painting, and architecture.
3 Lect Hrs 3 Credits
Mr. Cervera

254 American Architecture
A survey of American architecture and town planning from the 17th century to the present. Topics studied will include early colonial architecture, the search for a new style for the New Republic, 19th century expansion and ecclecticism, the rival of domestic architecture the skyscraper, style and the development of modern architecture in the 20th century.
3 Lect Hrs 3 Credits
Ms. Fergusson

257 Aspects of Buddhist Art
A comparative survey of Buddhist architecture, sculpture and painting with material which ranges from the rock-cut caves of India to the Zen ink paintings of Japan. Illustrates the development of Buddhist doctrines in Asia.
3 Lect Hrs 3 Credits
Ms. Weiner

264 The Art of Africa
An introduction to the African arts (especially carved figures, masks, rock and wall paintings, textiles and rural objects) in relation to the ethnic background as well as esthetic expression, art historical problems within the continent and the impact of African forms on other cultures of the 19th and 20th centuries.
3 Lect Hrs 3 Credits
Staff

266 North American Indian Art
An examination of art forms and styles of American Indians north of Mexico, concentrating on relationships of art to its society with emphasis on the structural analysis of form and pattern, the impact of European culture, the role of the artist and the relationship of technology and environment to the art form.
3 Lect Hrs. 3 Credits
Staff

268 History of Western Sculpture
A survey of Western sculpture from Greece to contemporary America. Discussion will bring out the various definitions of sculpture held by people of different ages and cultures, critical approaches to sculpture in the 20th century, and the use and effect of different media. The course will concentrate on major monuments and artists. Field trips required.
3 Lect Hrs 3 Credits
Ms. Butler

270 History of Film
History of the medium from 1895 to the present through those films recognized as masterpieces of the art or those which have presented new technical-conceptual inventions in the cinematic vocabulary. Class time includes film screening, lecture and discussion.
3 Lect Hrs, 1 Hr Film Screening 3 Credits
Mr. Risse

272 History of Photography
A survey of the history of photography from the invention of the medium in the 19th century to the present. Emphasis on photography as a medium of expression and communication, and on the distinctive qualities of selected photographers.
3 Lect Hrs 3 Credits
Staff

275 Visual Experiments
Development of visual awareness and understanding visual modes of expression through assigned problems requiring individual solutions.
Prerequisite: Art 100 or Art 175
5 Combined Lect/Studio Hrs 3 Credits
Staff

281 Drawing I
Basic materials and techniques, with emphasis on drawing as a primary means for the description and interpretation of man and his environment. Problems in still life, landscape, and life drawing.
Prerequisite: Art 100 or Art 175
4 Combined Lect/Studio Hrs 3 Credits
Staff

293 Photography I
This course introduces the student to basic i

sues in photography. Mechanics of the camera, techniques of the darkroom, and creative and personal import. Illustrated lectures, class critiques, and assigned lab hours. Some attention is given to the history of photography and its more significant creative impulses.
Prerequisite: Art 100 or Art 175
5 Combined Lect/Studio Hrs 3 Credits
Staff

310 Studies in the History of Painting
A topic course designed to provide in-depth study in different aspects of the history of painting. Courses under this heading will deal with ideas, issues, movements and major figures in painting. Topics will vary by semester and instructor. Consult current course announcement for specifics.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Staff

311 Introduction to Italian Renaissance Painting
The creation and flowering of the early Renaissance style in Florence. Masaccio, Fra Angelico, Piero Della Francessca, Botticelli and Leonardo da Vinci, among others.Their relationship to the different esthetic and intellectual responses in the various local centers.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Arb

312 Italian Renaissance Painting: The Golden Age
A definition of high Renaissance classicism of the particular form the style took in Rome and Venice in the first three decades of the 16th century. Concentration on the careers of Raphael, Del Sart, Michelangelo, Giorgione, Titian and Correggio, with reference to relevant lesser personalities.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Arb

313 Mannerism in Visual Arts, 1520 to 1600
An exploration of the new style developed in Italy in reaction to Raphael's classicism which spread to Northern Europe between the high Renaissance and the Baroque. From theory and content in relation to the social crises of the Reformation and the Counter-Reformation. The 'psychology' of mannerism and its relationship to the modern age.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Arb

316 Painting, 1780-1850
A study of the major movements and artists involved in the evolution of 19th century painting in the first half of the 19th century. An investigation of the major movements in European painting between 1780 and 1850. Neoclassicism and Romanticism. The course will trace the development of these movements and that of the leading figures responsible for this development (e.g. Blake, Fuseli, Goya, David, Runge, Friedrich, Constable, Turner, Gericault, Delacroix and Ingres.)
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Mr. Cervera

317 Painting, 1850 to 1900
Painting in the second half of the nineteenth century: realism, impressionism, symbolism, art noveau and post-impressionism. The course will trace the development of these movements and that of the leading figures responsible for their development (e.g.: Courbet, Manet, Monet, Moreau, Seurat, Gauguin, Van Gogh, Cezanne).
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Staff

318 Painting, 1900 to 1945
A study of the major movements and artists in the first half of the twentieth century, and their relationship to social and intellectual developments. The evolution of twentieth century painting: fauvism, cubism, German expressionism, futurism, neue sacklichkeit, dada, surrealism and abstract art.
Prerequisite: Art 202 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Cervera

319 Painting, 1945 to the Present
Trends and tendencies in contemporary art: abstract impressionism, pop, op, minimal, post paintery abstraction, color field, new realism, happening, performance art, video and conceptual art. In addition to investigating these movements and the major figures involved in their development, the course will also consider the role of contemporary criticism and its influence on the arts.
Prerequisite: Art 202 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Cervera

320 Studies in the History of Sculpture
This course will deal with specific problems in the history of sculpture. It is designed to focus upon single artists, types of commissions, aspects of iconography, national or period styles as they come up in the history of sculpture. Topics will vary by semester and instructor. Consult current course announcement for specifics.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Staff

324 Italian Sculpture, 1300 to 1600
A survey of the various styles and subjects of Italian sculpture, stressing the work of major artists such as Pisano, Ghiberti, Donatello, Michelangelo, Cellini and Giambologna.
3 Lect Hrs 3 Credits
Ms. Arb

326 Tomb Sculpture
The course will study the sculptural forms man has employed as marker of the grave in various civilizations from primitive burials through rural cemeteries of the 19th century. Particular focus will be placed on the question: How does the tomb reveal the ways in which either an age has seen itself or an individual himself?
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Butler

328 Modern Sculpture
Emphasis on the 19th century origins of modern sculpture and the range of sculptural expression achieved during the 20th century. Field trips required.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Butler

330 Studies in the History of Architecture
A topics course designed to provide in-depth study of the historical and contemporary ideas, issues and major figures in architecture and urban planning. Topics will vary by semester and instructor. Consult current course announcement for specifics.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Staff

339 Twentieth Century Architecture
Theory and form in twentieth century architecture. The course will present a detailed examination of architecture in both Europe and America since 1900. Subjects will include art nouveau; de stijl; the bauhaus; the new internationalism vs. art deco styles; fascist and capitalist architecture of the thirties and forties;

minimalist styles vs. revivalism; the sculptural and monumental vs. nihilist attitudes in contemporary architecture. Some thought will be given to the contrast between 'popular' and 'elitist' styles. Considerable attention will be given to contemporary theories on the function and forms of architecture.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Fergusson

340 Studies in the History of Criticism and Aesthetics
A topic course in the analysis of aesthetics and art criticism designed to provide a better understanding of issues and major developments in the history of ideas. Topics will vary by semester and instructor. Consult current course announcement for specifics.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Staff

344 Images of Women in Art
A lecture course dealing with the varied ways in which women have been portrayed in painting, sculpture, and prints. Topics will deal with the depiction of both the positive and negative aspects of woman's conventional roles. Woman as allegory and portraits of women will be examined as well as the historical situation of the woman artist.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Arb

346 The American Vision in Art, 1860 to 1900
American art, especially painting, in the second half of the 19th century. The impact of social and intellectual forces, photography and the illustrated news weeklys on the traditional themes of landscape, portraiture and genre.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Arb

348 Naturalism and Realism in Art
Considering the controversy behind their definition, the course examines these ideas in the art of antiquity and by contrasting Renaissance and Baroque concepts of naturalism. Special stress will be given to naturalism and realism in the 19th century and on how the role of photography has changed 20th century ideas of realism.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Butler

350 History of Graphic Arts
A close examination of original prints designed to develop knowledge of the technical processes — woodcut, engraving, etching, lithography — and their evolution, and to introduce the student to criteria of connoisseurship. Concentration on the leading masters such as Mantegna, Dürer, Rembrandt, Blake and Goya. Most meetings in the Museum of Fine Arts, the Boston Public Library and the Fogg Museum. Preference given to senior art majors.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

365 The Documentary Film
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Mr. Risse

368 The Movies, 1930 to 1950
A study of the Hollywood film from the coming of sound to the coming of television, concentrating on certain of the major genres: gangster and crime films, the musical, and the western — and approaching them in terms of theme and structure, principally as a form of popular culture. Weekly film viewings in addition to the three regular class hours per week.
3 Lect Hrs, 3 Viewing Hrs 3 Credits
Mr. Risse

381 Drawing II
Continuation of work begun in Drawing I, involving problems in a number of drawing media (ink, charcoal, pencil, chalk, etc.) Approached through work with still-life, landscapes and the human figure.
Prerequisite: 3 Courses in Art and permission form
5 Combined Lect/Studio Hrs 3 Credits
Staff

382 Drawing III
Continuation of major concerns in drawing II with a new emphasis on the integration of these issues into a pictorial statement.
Prerequisite: Drawing II and permission form
5 Combined Lect/Studio Hrs 3 Credits
Staff

383 Painting Workshop
Specific problems are developed in or through various painting media including oil, opaque, watercolor, acrylics. Content will differ from semester to semester.
Prerequisite: 3 Studio Courses in Art and permission form
5 Combined Lect/Studio Hrs 3 Credit
Staff

384 Painting Workshop
Specific problems are developed in or throug various painting media including oil, opaque watercolor, acrylics. Content will differ fro semester to semester.
Prerequisite: 3 Studio Courses in Art and pe mission form
5 Combined Lect/Studio Hrs 3 Credi
Staff

385 Three-Dimensional Workshop I
This course takes up issues basic to thre dimensional form, such as particular materia and techniques, or it may take up topics to b solved by three-dimensional means. Conte devised for a particular semester will not b repeated.
Prerequisite: 3 Studio Courses in Art and pe mission form
5 Combined Lect/Studio Hrs 3 Credi
Staff

386 Three-Dimensional Workshop II
This course takes up issues basic to thre dimensional form, such as particular materia and techniques, or it may take up topics to b solved by three-dimensional means. Conte devised for a particular semester will not b repeated.
Prerequisite: 3 studio courses in art and permi sion form
5 Combined Lect/Studio Hrs 3 Credi
Staff

387 Graphics Workshop
This course will consist of a series of problen in pattern, systems, composition and person symbology manifested through simple printi techniques (linocuts, stencils, etc.) plus son use of color papers and inks. Content will va from semester to semester.
Prerequisite: 3 Studio Courses in Art and pe mission form
5 Combined Lect/Studio Hrs 3 Credi
Staff

388 Graphics Workshop
This course will consist of a series of proble in pattern, systems, composition and perso symbology manifested through simple printi techniques (linocuts, stencils, etc.) plus so use of color papers and inks. Content will va from semester to semester.
Prerequisite: 3 studio courses in art and perm sion form

5 Combined Lect/Studio Hrs 3 Credits
Staff

393 Photography II
A continuation of studies begun in Photography — Art 293 — , with an explicit escalation not only in content, but in expectation of achievement as well. Lectures, group critique, and laboratory assignments.
Prerequisite: 3 courses in art and permission form
5 Combined Lect/Studio Hrs 3 Credits
Staff

394 Photography III
Stressing personal and independent points of view through lectures, group critique, discussion meetings, and darkroom work.
Prerequisite: Photography II and permission form
5 Combined Lect/Studio Hrs 3 Credits
Staff

478 Independent Study I
Independent investigation of a special area under the supervision of a qualified professor. Open only to a limited number of students in any one semester. A written prospectus of the project is required of applicants.
Prerequisite: Permission of instructor and department chairperson.
Hrs. by Arrangement 3 Credits
Staff

479 Independent Study II
Independent investigation of a special area under the supervision of a qualified professor. Open only to a limited number of students in any one semester. A written prospectus of the project is required of applicants.
Prerequisite: Permission of instructor and department chairperson.
Hrs by Arrangement 3 Credits
Staff

480 Seminar in Visual Studies I
Designed primarily for the art major to provide advanced work in areas and topics not normally offered in existing courses. Course content will vary with instructor. May be repeated for credit.
Prerequisite: Permission of instructor
3 Lect Hrs or 4 Lab Hrs 3 Credits
Staff

481 Seminar in Visual Studies II
Designed primarily for the art major to provide advanced work in areas and topics not normally offered in existing courses. Course content will vary with instructor. May be repeated for credit.
Prerequisite: Permission of instructor
3 Lect Hrs or 4 Lab Hrs 3 Credits
Staff

484 Junior Seminar in Art History
A course designed for those students beyond the freshman year who are considering the possibility of doing graduate or professional work in the history of art. Work is structured so that students concentrate on a number of small projects individually and in groups in order to examine the different methods used by art historians, the bibliography of art history, and the ways of organizing research and presenting material verbally with slides. Career possibilities and the nature of graduate work in art history are discussed.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Ms. Butler

486 Senior Seminar in Studio
This course concentrates on issues arising out of three sources — selected exhibitions, assigned reading on particular artists and schools, and areas of immediate interest to individual faculty engaged in conducting class sessions. Illustrated lectures, field trips, group discussions, and oral report sessions. A number of faculty members will participate in the weekly seminars.
Prerequisite: 6 Courses in Art and senior standing
1 Lect Hr 1 Credit
Staff

487 Senior Seminar in Studio
This course concentrates on issues arising out of three sources — selected exhibitions, assigned reading on particular artists and schools, and areas of immediate interest to individual faculty engaged in conducting class sessions. Illustrated lectures, field trips, group discussions, and oral report sessions, a number of faculty members will participate in the weekly seminars.
Prerequisite: 6 Courses in Art and senior standing
1 Lect Hr 1 Credit
Staff

488 Special Problems — Field Work I
An independent project with an off-campus focus under the supervision of a qualified professor or approved agency. Open to a limited number of students in any semester. A written prospectus of the project is required of all applicants.
Prerequisite: Permission of instructor and department chairperson.
Hrs by Arrangement 1-3 Credits
Staff

489 Special Problems — Field Work II
An independent project with an off-campus focus under the supervision of a qualified professor or approved agency. Open to a limited number of students in any semester. A written prospectus of the project is required of all applicants.
Prerequisite: Permission of instructor and department chairperson.
Hrs by Arrangement 1-3 Credits
Staff

BIOLOGY

Faculty

Lawrence Kaplan, Professor, Chairperson; Professors Herbert Lipke, Walter Rosen, Nevin Weaver, Richard White; Associate Professors Ruth Bennett, John A. Freeberg, Bettina Harrison, Jeremy Hatch, Fuad Safwat, John H. Schultz, Edna Seaman, Claire Van Ummersen, Garrison H. Wilkes; Assistant Professors Kamaljit Bawa, John Ebersole, William Hagar, Christine Armett Kibel, David J. Policansky, Michael Rex, Ruth Schmitter, Harland Sheerin; Part-time Assistant Professor Elizabeth A. Davis; Visiting Assistant Professor David Irwin; Lecturer Elizabeth Campbell; Part-time lecturer Karlene Schwartz

Requirements for Graduation

These requirements apply to all students who enter UMB after the Fall term, 1976.

Courses:

General Biology 111-112 (lab required)
Genetics 252 (lab required)
Physiology 211 (lab required)
Chemistry 103-104 (lab required)
2 semesters Introductory Physics with lab
2 semesters Mathematics 130-135, 140-141, or equivalent are recommended; 100, 105, 110, 120, 125, 126 are not acceptable.
15 semester hour credits at the 300 level or

above in Biology; a minimum of 3 credit hours in the laboratory must be included.

8 additional credits; 200 level or above in Biology or in related fields.

Related courses include Organic Chemistry, certain other advanced science courses (not the basic ones required of Bio majors), and certain social science courses in the biobehavioral area. You need to obtain prior approval from the department chairperson for all these closely related subjects.

Majors are advised to take Biol 111-112, Chem 103 - 104, and Math during their first year; Biol 252 and Biol 211 and Introductory Physics during their second year. Not more than one course in Biology or approved closely related field specified as part of the Biology major degree requirements shall be taken on a Pass/Fail basis.

Exemption from Introductory Biology

Students may satisfy the Biology Department major requirements for General Biology (Biol 111-112) and/or one year of the natural sciences core requirement through a special qualification program in Biology. Interested students who have a strong background in secondary school biology should 1) contact the Biology Department for an interview and 2) take a written examination in Biology to be offered prior to registration for the fall term.

Honors in Biology

To graduate with honors in Biology it is necessary to complete satisfactorily a program of at least 3 credits in Independent Study in Biology. The Biology faculty will confer departmental Honors upon students who:

1. Have a cumulative average of 3.0 or better.
2. Have obtained satisfactory grades in their advanced biology courses. (Generally interpreted as no pass/fail enrollment and a 3.0 average in all biology courses number 200 or above).
3. Have written a thesis and given an oral presentation of their independent study project which the biology faculty feel merits the awarding of honors. This presentation will usually be during the last week of classes, and the thesis is due one week prior to this.

A description of courses in the graduate program in Biology appears near the end of this catalogue.

101 The Basis of Life
The uniqueness of life within the physical universe. The matter and energy of life, the genetic code, molecular biology, and the origin and evolution of life. An overview for students in the humanities and social sciences of those features which distinguish living organisms from non-living things. No background in the natural sciences is required.
3 Lect Hrs, 1 Disc Hr 4 Credits
Staff

102 Evolutionary Biology
Designed for students in the social sciences and humanities. Those areas of genetics, ecology and evolution that form a unified approach to the study of organisms and populations.
No background in the natural sciences is required.
3 Lect Hrs 4 Credits
Staff

104 Human Biology
A one semester course designed principally for those who do not intend to major in biology. Principles of biology are taught using the human organism as a representative of biological systems at several levels. Subjects covered include human evolution, genetics, reproduction and development, and the impact of man on our environment.
No background in the natural sciences is required.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Mr. Schultz

105 Plants and Human Affairs
The origin, botanical relationships, domestication and history of economic plants with emphasis on man's dependence on cultivated plants and his influence on the vegetation of the world.
No background in the natural sciences is required.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Mr. Wilkes

108 Introduction to Nutrition
Introduction to the elements of nutrition with emphasis on humans; examination of food stuffs and nutritional quality: physiology of food utilization, food quality regulations and the global ecology of food production.
No background in the natural sciences is required.
3 Lect Hrs 3 Credits
Mr. Sheerin, Mr. Wilkes

111 General Biology I
An integrated course stressing the principles of biology. Life processes are examined primarily at the molecular and cellular levels. Intended for students majoring in biology or for non-majors who wish to take advanced biology courses.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

112 General Biology II
An integrated course stressing the principles of biology. Life processes are examined primarily at the organismal and population levels. Intended for students majoring in biology or for non-majors who wish to take advanced biology courses.
Prerequisite: Biology 111
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

200 Field Biology on Nantucket
Summer only. Requires written reports on original research projects on the field biology of Nantucket Island. Meets every weekday during part of the summer at the University's field station on Nantucket. Lectures, seminars and individual consultation arranged. Mainland students live at the station and are responsible for modest expenses.
Prerequisite: Biology 112 or permission of instructor
Hrs by Arrangement 1-6 Credits
Staff

211 Physiology of Organisms
A study of basic plant and animal physiology at the organismal level.
Prerequisite: Biol 111 and 112: Co-or prerequisite Chem. 103.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

213 Physiology of Organisms Lecture
A study of basic plant and animal physiology at the organismal level. (The lecture portion of Biol 211).
Prerequisite: Biology 111 and 112.
3 Lect Hrs 3 Credits
Staff

220 Taxonomy of Seed Plants
Evolutionary relationships of orders and families of seed principles of taxonomy; systems of classification; a survey of the major plant families. Corequisite: Biology 221.
Prerequisite: One year of Biology or permission of instructor.

3 Lect Hrs 3 Credits
Mr. Kaplan

221 Taxonomy of Seed Plants Laboratory
Laboratory study of the major seed plant families, collection and identification of local flora.
Corequisite: Biology 220
3-6 Lab Hrs. Occasional
Field Trips 1-2 credits
Mr. Kaplan

232 Invertebrate Zoology
Evolution, ecology, life history and morphology of invertebrate animals. Emphasis placed on living representatives of local fauna, especially marine invertebrates.
Prerequisite: Biology 111 and 112
3 Lect Hrs, 6 Lab Hrs 5 Credits
Mr. Rex

234 Invertebrate Zoology Lecture
Lecture portion of Biology 232. Evolution, ecology, life history and morphology of invertebrate animals, emphasis placed on living representatives of local fauna, especially marine invertebrates.
Prerequisite: Biology 111 and 112
3 Lect Hrs 3 Credits
Mr. Rex

238 Ornithology
The biology of birds, with emphasis on problems of wider biological interest in ecology and behavior. Normally taken in conjunction with laboratory and field work, Biol 239.
Prerequisite: Biology 111-112 or equivalent
3 Lect Hrs 3 Credits
Mr. Hatch

239 Ornithology Laboratory
Laboratory and field work in ornithology (in conjunction with Biol 238). Some weekend field trips required.
Corequisite: Biology 238
3 Lab Hrs 1 Credit
Mr. Hatch

240 Introduction to Population Biology
Basic course in ecology and evolution. Examines interactions of organisms at the population and community levels. Topics include patterns of climate and communities, energy flow and nutrient cycling, productivity, biogeochemical cycles, population growth, life history strategies, behavior, natural selection, adaptation, speciation and human ecology and evolution.
Prerequisite: Biol 111-112 or equivalent
3 Lect Hrs, 2 Lab Hrs (including several weekend field trips) 4 Credits
Staff

250 Sociobiology
The societies of both invertebrates and vertebrates will be studied: colonial invertebrates and various loose associations of individuals will be examined briefly. The nature of various societies their adaptive significance; the behavioral, physiological and anatomical modifications for social life, and communication within and among societies will be stressed. Theories of the evolutionary origin of societies will be examined in some detail. The laboratory will consist of analysis of societies and social interactions studied on film and in the field.
Prerequisite: Biology 112 or equivalent, or 1 semester of biology and 1 of a closely related subject.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Mr. Weaver

252 Genetics
The basic principles of heredity through an integrated presentation of molecular and classical (Mendelian) genetics. Topics include the nature of the hereditary material. Structure of chromosomes and patterns of inheritance.
Prerequisite: Biol 111 and 112. Chem 103-104 recommended.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

254 Genetics Lecture
The lecture portion of Biol 252.
Prerequisite: Biology 111 and 112.
3 Lect Hrs 3 Credits
Staff

312 Developmental Biology
Basic processes of development at the organismal level using both animal and plant examples. Topics included will be reproduction, gametogenesis, growth, morphogenesis, differentiation, gene expression and organogenesis.
Prerequisite: Biology 211 or 213; and Chemistry 103
3 Lect Hrs, 6 Lab Hrs 5 Credits
Staff

314 Developmental Biology Lecture
The lecture portion of Biol 312.
Prerequisite: Biology 211 or 213 and Chemistry 103
3 Lect Hrs 3 Credits
Staff

316 Animal Coordination
Nervous and hormonal mechanisms of physiological and behavioral control in animals. Basic physiology of systems involved in integration, physiology of endocrines, nervous system, muscles and sense organs and their interrelationship in achieving coordination in the whole organism. Emphasis on vertebrates, with some comparisons to invertebrate systems.
Prerequisite: Biol 211 or 213 or permission of instructor
3 Lect Hrs, 6 Lab Hrs 5 Credits
Staff

318 Animal Coordination Lecture
The lecture portion of Biol 316.
Prerequisite: Biol 211 or 213 or permission of instructor
3 Lect Hrs 3 Credits
Staff

320 Vascular Plants
Growth, structure and function of vascular plants with emphasis on the plant as a functioning unit. Practical aspects of the botany of higher plants will be included in the laboratory along with descriptive and experimental work.
Prerequisite: Biology 211 or 213
3 Lect Hrs, 6 Lab Hrs 5 Credits
Mr. Freeberg

322 Vascular Plants Lecture
The lecture portion of Biology 320.
Prerequisite: Biology 211 or 213
3 Lect Hrs 3 Credits
Mr. Freeberg

324 Biology of Non-Seed Plants
A study of the major plant groups emphasizing life cycles of the non-seed bearing plants and the control of life cycles by environmental and genetic factors. Aspects of autotrophic and heterotrophic nutrition of particular relevance to these plant groups and their phylogeny will be discussed. In addition to the use of pure cultures, students will isolate from nature and will culture non vascular plant species. For appropriate species, particularly algae, fungi, slime molds, and gametophytes of moss and ferns, the experimental control of life cycles and sexuality will be investigated.
Prerequisite: Biology 211 or 213
3 Lect Hrs, 6 Lab Hrs 5 Credits
Ms. Schmitter

Departmental Courses and Requirements

326 Biology of Non-Seed Plants Lecture
The lecture portion of Biol 324.
Prerequisite: Biology 211 or 213
3 Lect Hrs 3 Credits
Ms. Schmitter

330 Biology of Fishes
Evolution, ecology, genetics, taxonomy and structure of fish. Biological problems of general interest will be emphasized, such as breeding systems, genetics of sex determination, evolution by means of chromosome duplication, environmental physiology and migration.
Prerequisite: Biology 211, 252
3 Lect Hrs 3 Credits
Mr. Policansky

334 Microbiology
Characterization and classification of the major groups of microorganisms, and the relationships of some of these with man and the environment. Lectures and laboratory work will treat distinguishing morphological, physiological, and nutritional characteristics of the bacteria, algae, fungi, and protozoa. Consideration of host-parasite relationships and of environmental, food, and industrial microbiology.
Prerequisite: Biol 211 and Chem 104
3 Lect Hrs, 3 Lab Hrs 4 Credits
Ms. Seaman, Ms. Schmitter

342 Ecology
A course in population and community ecology. Topics include theory and case studies of population dynamics, competition, predation, niche concepts, life history strategies, behavioral interactions, energetics and productivity, community structure and organization, and biogeography.
Prerequisite: Biol 111, 112 and 240
3 Lect Hrs 3 Credits
Staff

343 Ecology Laboratory
Field trips to local terrestrial and marine communities, laboratory studies of population dynamics, interactions between species, and analytical approaches to ecological data. Some field trips may be scheduled on Saturday.
Corequisite: Biol 342
1 Lect Hr, 3 Lab Hrs 2 Credits
Staff

348 Animal Behavior
The course deals with some topics in the physiology and development of behavior and more extensively with social organization, communication and ecological aspects of behavior. Emphasis on the function and evolution of behavior.
Prerequisite: Biol 240 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Hatch

349 Methods in Ethology
Observational and experimental analyses of the behavior of a variety of species. Laboratory studies, films and field trips.
Prerequisite: Biol 240. Biol 348 is a corequisite
5 Lab Hrs, 1 Disc Hr 3 Credits
Mr. Hatch

352 Evolution
Evolution as the unifying concept of Biology. Topics will include population genetics, adaptive strategies, sex and breeding systems, speciation and population differentiation, fossil histories, evolution of man.
Prerequisite: Biol 240, 252
3 Lect Hrs 3 Credits
Staff

353 Evolution Laboratory
Laboratory investigation of evolutionary processes, including populations of organisms, cytology, computer simulations.
Corequisite: Biol 352
3-6 Lab Hrs, 1 Disc Hr 2-3 Credits
Staff

371 Biology of Cells I
The cytology and fine structure of cells in relation to the production of energy for growth and reproduction. The chemistry of the life process considered in detail as a tool for inquiry into current problems in biology.
Prerequisite: Biol 211 or 213: Corequisite: Organic Chemistry
3 Lect Hrs 3 Credits
Staff

372 Biology of Cells II
The structure and function of the nucleus. The biochemical mechanisms of growth and reproduction at the molecular level.
Prerequisite: Biology 371
3 Lect Hrs 3 Credits
Staff

373 Methods in Cell Biology I
This is the laboratory to accompany Biology 371 (Biology of Cells I). The laboratory comprises several tracks, each dealing with some aspect of cell function. Each 7 week track is an autonomous unit, with a minimum of 1 hour o lecture and 5 hours of laboratory per week Each student must take 2 tracks per semester
Prerequisite or corequisite; Biol 371 or equiva lent
1 Lect Hr, 5 Lab Hrs 3 Credit
Staff

374 Methods in Cell Biology II
This is the laboratory to accompany Biolog 372 (Biology of Cells II). The laboratory com prises several tracks, each dealing with som aspect of cell function. Each 7 week track is a autonomous unit. Each student must take tracks per semester.
Prerequisite or corequisite: Biol 371-372 c equivalent
1 Lect Hr, 5 Lab Hrs 3 Credi
Staff

478 Independent Study I
An opportunity for qualified, advanced stu dents to work on a specialized topic or researc project in biology under the guidance of a fac ulty advisor. It is open to seniors and 2n semester juniors. The course will normally b taken for 3 credits per semester. Enrollmer may be for one semester, but students ar strongly urged to enroll for a full year. Th course can be taken in the summer. Biol 47 479 do not count toward biology major re quirements.
Prerequisite: 2nd semester Jr and permission c a research director
Hrs by Arrangement 1-3 Credi
Staff

479 Independent Study II
A continuation of Biol 478 (see description that course).
Hrs by Arrangement 1-3 Credi
Staff

483 Directed Research on Nantucket
Summer only. Requires written reports on ori inal research projects done at University fie station under the direction of a specific sta member. In general, projects will be carried o during the first half of the summer, but b arrangement, some work may be accomplishe at other times during the year. The proje should be planned well in advance of the tin that the field work is to be done. Mainlar students live at the field station and are respo sible for modest expenses.
Prerequisite: Previous experience in field bic ogy, substantial background in biology and r lated subjects and permission of the instructo

Hrs by Arrangement 1-6 Credits
Staff

586 Curriculum and Methods-Student Teaching-Biology
The issues, principles and methods of teaching biology in the schools. Supervision and critique of practice teaching. Biology majors are advised to check the scheduling of practice teaching with the department. Not ordinarily allowed as credit toward the biology major requirements.
Prerequisite: 6 hours education courses and admission to the teacher certification program
3 Lect Hrs, 20 Lab Hrs (practice teaching) 9 Credits
Staff

BLACK STUDIES

Faculty

Bruce R. Hare, Assistant Professor, Chairperson; Assistant Professor Luckson E. Ejofodomi; Lecturers Gwendolyn A. Brown, Lemuel Carroll, George B. Cox, Rudolph R. Featherstone, Marilyn D. Saunders Montiero, Reginald Williams

Requirements for Graduation

The requirements for a Black Studies major are consistent with the concept of Black Studies as a multi-disciplinary plan of study designed to provide its majors with a wide range of knowledge and analytical abilities as well as a firm grounding in an area specialization such as History, Social Science, or the Humanities.

All majors are required to take Blk Sty 110 and 111 (Introduction to Black Studies I and II) as well as to meet methodology and research requirements within the Department. Senior students with at least a 3.0 average will be allowed the opportunity to write an honors thesis under Departmental supervision.

1. A minimum of 9 courses of work is also required for the major in Black Studies.
2. One course is required in each of the 3 general areas: Black History, the Humanities, the Social Sciences.
3. At least 5 courses must be taken in a single area as a field of specialization.
4. Majors must take at least 5 of the 9 required courses in the Black Studies Department.

Majors in Black Studies will be advised to supplement their work with recommended courses in other departments in order to understand the Black experience within the broad framework of the world at large. Other requirements for Black Studies majors are consistent with general university requirements.

Black Studies Concentration

Students majoring in other subject areas who complete five approved courses will receive official recognition of a five course concentration in Black Studies.

100 Introduction to Black Literature
Survey course of black literature from slavery through present times.
3 Lect Hrs 3 Credits
Ms. Montiero

102 The History of Black Education
A comparative study of the history of black education from earliest times to 1954.
3 Lect Hrs 3 Credits
Mr. Ejofodomi

104 Drug Abuse and the Black Community
An overview of the history and current problems evolving from drug abuse in black urban communities in the United States. Discrimination, prejudice, limited access to opportunity structures, treatment for the use of drugs, the law, community institutions, and value systems are examined as they pertain to drug use in the Black community.
3 Lect Hrs 3 Credits
Mr. Williams

108 Black Social Movements
Concepts of social movements as well as the appearance of social movements among Black Americans in the 19th century are examined. Examination of 20th century Black social movements, especially Marcus Garvey's movement, nation of Islam, the Civil Rights movement and Black Power Movement.
Prerequisite: A course in Sociology, Political Science or Afro American History.
3 Lect Hrs 3 Credits
Mr. Ejofodomi

110 Introduction to Black Studies I
An introduction to the key issues in Black Studies. An outline of the history of Blacks in Africa, Canada, the West Indies and the United States to 1865.
3 Lect Hrs 4 Credits
Mr. Ejofodomi

111 Introduction to Black Studies II
An introduction to the major issues, problems and methods of research relating to Black studies. Topical approach to the study of Black history from 1865 to the present.
3 Lect Hrs 4 Credits
Mr. Ejofodomi

201 Roots of the Black Family
An exploration of the social, economic and religious issues affecting the Black family.
3 Lect Hrs 3 Credits
Ms. Brown

301 Black Intellectual Thought
A survey course of the significant writings of Black Americans from the period of emancipation to the present, with special reference to the issues concerning the educational, political, sociological and psychological status of Blacks in the United States.
3 Lect Hrs 3 Credits
Mr. Featherstone

480 Topics in Afro-American Studies
3 Lect Hrs 3 Credits
Staff

480C Afro-American Experience through Music
An analysis of the varieties of Black music. The course also examines the African roots of Black music.
3 Lect Hrs 3 Credits
Mr. Carroll

480D Black Urban Politics
An examination of the dynamics of Black politics in the urban setting.
3 Lect Hrs 3 Credits
Mr. Williams

480F The Black Church and its African Antecedents
An in-depth study of the origins, development and expansion of the Black church, as well as an examination of its function as a pillar of strength for Black Americans.
3 Lect Hrs 3 Credits
Mr. Featherstone

480G Race, Class, and Political Modernization
An exhaustive treatment of the evolution of the American socio-political system and the role function of black people and third world nationalities. Special attention will be given to

the interplay between racial oppression and class exploitation as factors in the political process.
3 Lect Hrs 3 Credits
Ms. Brown

480H Department Seminar
A dialogic examination of selected topics as they impinge upon segments of Black community. These topics will be treated with a view towards solutions.
1 Lect Hr 1 Credit
Staff

480I School Desegration
An intensive exploration of the issues that have affected desegregation with a view towards their interrelatedness. The case study method will be employed as one element.
3 Lect Hrs 3 credits
Mr. Cox

488 Black Studies Senior Thesis I
Study in-depth of a topic chosen by the student in consultation with an honors advisor and a paper written with the approval and under the direction of an honors advisor, normally related to work done in the honors seminar. Honors awarded on the basis of performance in the honors seminar, evaluation of the paper by the Afro-American studies concentration committee, and 3.0 overall average.
Prerequisite: Black Studies 498 and 499 and permission of the Black Studies Department.
Hrs by Arrangement 3 Credits
Staff

489 Black Studies Senior Thesis II
Study in-depth of a topic chosen by the student in consultation with an honors advisor and a paper written with the approval and under the direction of an honors advisor, normally related to work done in the honors seminar. Honors awarded on the basis of performance in the honors seminar, evaluation of the paper by the Afro-American studies concentration committee, and 3.0 overall average.
Prerequisite: Black Studies 498 and 499 and permission of the Black Studies Department.
Hrs by Arrangement 3 Credits
Staff

498 Black Studies Honors Seminar I
An interdisciplinary seminar for students admitted to option B, honors, and to a limited number of other highly qualified students participating in the option A program.
Prerequisite: 3.0 overall average and permission of the Black Studies Department.
3 Lect Hrs 3 Credits
Staff

499 Black Studies Honors Seminar II
An interdisciplinary seminar for students admitted to option B, honors, and to a limited number of other highly qualified students participating in the option A program.
Prerequisite: 3.0 overall average and permission of the Black Studies Department.
3 Lect Hrs 3 Credits
Staff

CHEMISTRY

Leverett J. Zompa, Professor, Chairperson; Professors J-P Anselme, Ernest I. Becker, Thomas N. Margulis, Lowell M. Schwartz, Chi-Hua Wang; Associate Professors Joseph S. Alper, Robert L. Carter, Robert I. Gelb, Daniel A. Laufer, Hans van Willigen, Walter E. Weibrecht; Assistant Professor Elliot M. Weinstock; Instructor Kenneth F. Cerny; Lecturer Nancy Wang

Requirements for Graduation

Chemistry majors will take a basic group of courses in Chemistry, Mathematics, and Physics which will satisfy usual requirements appropriate to pre-professional training in Chemistry or teaching or to certain interdisciplinary fields of study.

All majors in Chemistry are required to take Chemistry 103-104, 153-154, 198, 241-242 and 269-270; Mathematics 140-141 and Physics 113-114 and either Physics 171-172 or 181-182 laboratories. Students interested in majoring in Chemistry should immediately contact the Chemistry department to be assigned a faculty advisor who will help plan a sequence of courses suitable to the student's interests.

101 Chemical Science I
First semester of a one-year introductory course for non-science majors. The basic principles of atomic structure, molecular structure and chemical change. Topics include atomic theory, the periodic table, chemical bonding and thermochemistry.
3 Lect Hrs, 1 Disc Hr 4 Credits
Staff

102 Chemical Science II
Systematic descriptive chemistry and the chemistry of biological substances.
3 Lect Hrs, 1 Disc Hr 4 Credits
Staff

103 Chemical Principles I
Introduction to the fundamental principles of chemistry including structure, the periodic table of the elements, chemical bonding and molecular structure, states of matter based on kinetic theory, chemical kinetics, equilibria, and elementary thermodynamics. Laboratory work presents an introduction to methods of quantitative chemical techniques.
3 Lect Hrs, 3 Lab Hrs, 1 Disc Hr 5 Credits
Staff

104 Chemical Principles II
Introduction to electrochemistry, oxidation-reduction reactions, acid-base systems, and a survey of the chemical properties of elements based on principles already introduced. Laboratory work presents qualitative and quantitative analysis.
Prerequisite: Chemistry 103
3 Lect Hrs, 3 Lab Hrs, 1 Disc Hr 5 Credits
Staff

153 Organic Chemistry I
An intensive survey of structure, reactions and synthesis of the main classes of organic compounds. Laboratory illustrates the preparation purification and identification of organic compounds by classical and instrumental methods.
Prerequisite: Chemistry 104
3 Lect Hrs, 3 Lab Hrs, 1 Disc Hr 5 Credits
Staff

154 Organic Chemistry II
An intensive survey of structure, reactions and synthesis of the main classes of organic compounds. Laboratory illustrates the preparation purification and identification of organic compounds by classical and instrumental methods
Prerequisite: Chemistry 104
3 Lect Hrs, 3 Lab Hrs, 1 Disc Hr 5 Credit
Staff

198 Chemical Problem Solving
Techniques of solving problems arising in chemistry in general and physical chemistry in particular. This course is a formal prerequisit for CH 241 and CH 269 but may be waived by passing a special examination. CH 198 should normally be taken after MA 151 and PY 113
Prerequisite: Chemistry 104
3 Lect Hrs 3 Credit
Staff

241 Physical and Analytical Chemistry I
Thermodynamics and theories of rate processes as applied to equilibria, electrochemistry, and separations techniques.
Prerequisite: Chemistry 104 and 198, Mathematics 151, Physics 114 and one Physics laboratory.
3 Lect Hrs, 3 Lab Hrs, 1 Disc Hr 5 Credits
Staff

242 Physical and Analytical Chemistry II
Thermodynamics and theories of rate processes as applied to equilibria, electrochemistry, and separations techniques.
Prerequisite: Chemistry 241.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

269 Chemical Structure I
Introduction to fundamental theories concerning the structure of atoms and molecules. Discussion of the application of spectroscopic methods in structure elucidation. Laboratory work illustrates lecture principles and provides practice in application of various spectroscopic techniques.
Prerequisite: Chemistry 104 and 198, Mathematics 151, Physics 114 and one Physics laboratory.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

270 Inorganic Chemistry
Discussion of the fundamental principles of modern inorganic chemistry. Laboratory includes synthetic techniques and methods of characterization of inorganic compounds.
Prerequisite: Chemistry 269.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

351 Organic Qualitative Analysis
Theory and practice in organic compound separation and identification employing classical and instrumental methods.
Prerequisite: Chemistry 154 or 156.
1 Lect Hr, 6 Lab Hrs 4 Credits
Staff

353 Introduction to Polymer Chemistry
An introductory survey of polymer chemistry including polymer structure and stereochemistry, characterization of polymers, categories of polymers, synthesis of reactants, and polymerization reactions and their mechanisms. Why and how polymers are tailor-made will be exemplified. Polymer chemistry as an interdisciplinary and as a unique area of chemical science will be stressed.
Prerequisite: Chemistry 154 or 156 and 241 or equivalent
3 Lect Hrs 3 Credits
Staff

354 Introduction to Biochemistry
Structure, chemistry and metabolism of nucleic acids, proteins and carbohydrates.
Prerequisite: Chemistry 154 or 156 or equivalent.
3 Lect Hrs 3 Credits
Staff

361 Analytical Instrumentation
Principles and use of instrumental methods in analysis.
Prerequisite: Chemistry 241 and 269.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

478 Readings in Chemistry
Topics vary depending on instructor
Hrs by Arrangement 1-4 Credits
Staff

479 Readings in Chemistry
Topics vary depending on instructor
Hrs by Arrangement 1-4 Credits
Staff

481 Advanced Laboratory in Chemistry I
Special laboratory topics under individual guidance by faculty member.
Prerequisite: All chemistry major graduation requirements.
12 Lab Hrs 4 Credits
Staff

482 Advanced Laboratory in Chemistry II
Special laboratory topics under individual guidance by faculty member.
Prerequisite: All chemistry major graduation requirements.12 Lab Hrs 4 Credits
Staff

491 Senior Thesis in Chemistry I
Original investigation by the student under the guidance of a faculty advisor. An oral resume before the chemistry staff is required.
Prerequisite: All chemistry major graduation requirements.
12 Lab Hrs 4 Credits
Staff

492 Senior Thesis in Chemistry II
Original investigation by the student under the guidance of a faculty advisor. An oral resume before the chemistry staff is required.
Prerequisite: All chemistry major graduation requirements.
12 Lab Hrs 4 Credits
Staff

615 Topics in Physical Chemistry
Topical discussions, each based on elementary principles studied in Chemistry 213-214 and progressing toward recent developments in the field.
Prerequisite: Chemistry 241 and 269
3 Lect Hrs 3 Credits
Staff

655 Topics in Organic Chemistry
Graduate level discussion of selected topics in organic chemistry.
Prerequisite: Chemistry 154 or equivalent
3 Lect Hrs 3 Credits
Staff

670 Topics in Inorganic Chemistry
Discussion of selected topics in inorganic chemistry.
Prerequisite: Chemistry 270
3 Lect Hrs. 3 Credits
Staff

CHINESE

101 Elementary Chinese I
Introduction to modern Mandarin; intensive practice in the four language skills with an audio-lingual approach, for students who have no creditable training in Chinese.
3 Lect Hrs, 2 Lab Hrs 4 Credits
Ms. Mao

102 Elementary Chinese II
Introduction to modern Mandarin; intensive practice in the four language skills with an audio-lingual approach, for students who have no creditable training in Chinese.
Prerequisite: Chinese 101 or equivalent
3 Lect Hrs, 2 Lab Hrs 4 Credits
Ms. Mao

201 Intermediate Chinese I
Continuation of Chinese 102. Intensive review and further study of grammar and audio-lingual skills with correlated intermediate level readings in modern Chinese.
Prerequisite: Chinese 102 or equivalent
3 Lect Hrs, 2 Lab Hrs 4 Credits
Ms. Mao

202 Intermediate Chinese II
Continuation of Chinese 201. Intensive review and further study of grammar and audio-lingual skills with correlated intermediate level readings in modern Chinese
Prerequisite: Chinese 201 or equivalent
3 Lect Hrs, 2 Lab Hrs 4 Credits
Ms. Mao

251 Modern Chinese Literature in Translation
Study of masterpieces, literary theories and authors in modern Chinese literature. The course covers the period begun with the literary revolution (1917) and up to the present time. Authors under study are: Lu Hsun, Lao She, Pa Chin, Mao Tun, Hao Ran and others. Readings in English, no knowledge of Chinese required.
3 Lect Hrs 4 Credits
Ms. Mao

253 Classic Chinese Novel in Translation
Study of masterpieces in the classic Chinese novel of Ming and Ching periods (13th-19th centuries). Some titles are: *The Romance of the Three Kingdoms, Golden Lotus, The Scholars, The Dream of the Red Chamber*, etc. Readings in English. No knowledge of Chinese required.
3 Lect Hrs 4 Credits
Ms. Mao

478 Independent Study
This course is open to students who are adequately equipped and wish to study Chinese above the Chinese 202 level (intermediate). Reading material in Chinese suited to the student's level will be assigned for study and at least one meeting per week with the instructor is required for the student to make an oral report in Chinese on the contents of materials studied and to be helped in areas where he has encountered difficulties. A mid-term and a final will be given to test the student's accomplishment.
Prerequisite: Chinese 202 and permission of instructor
Hrs by Arrangement 3 Credits
Ms. Mao

CLASSICS

Faculty

R. Joseph Schork, Professor, Chairperson; Professor George Koniaris; Assistant Professors Jeffrey L. Houben, Emily A. McDermott, Frank J. Nisetich; Lecturer Gerald J. Sullivan

Greek Requirements

1) Greek 222 and at least four (4) three-credit courses in Greek at the 300+ level, including GR 310, Epic Poetry
2) Either CL 281-282 or HIST 208-209 or any other two Classics courses with departmental approval
3) Either two semesters of college Latin at the appropriate level or two additional Greek courses at the 300+ level.

Latin Requirements

1) Latin 222 and at least four (4) three-credit courses in Latin at the 300+ level, including LA 310, Virgil
2) Either CL 281-282 or HIST 208-209 or any other two Classics courses with departmental approval

3) Either two semesters of college Greek at the appropriate level or two additional Latin courses at the 300+ level

Greek - Latin Major Requirements

1) Greek 222 and Latin 222
2) At least five (5) three-credit Greek or Latin courses at the 300+ level: three in one language, two in the other
3) Either CL 281-282 or HIST 208-209 or any other two Classics courses with departmental approval

Classical Studies Major Requirements
1) 2 semesters of Latin or Greek
2) Classics 161, English Lexicon
3) Classics 281-282 or HIST 208-209
4) Classics 295, Senior Seminar
5) Three (3) other Classics courses (1 may be allied)

The department also offers majors the opportunity to participate in an Honors Program. Information about overseas programs in Greece or Italy can be obtained from the Chairperson.

161 The English Lexicon
The debt our language owes to Latin and Greek. An introductory consideration of English vocabulary, word formation, and word origins. Suggested as an aid to basic skills development and to general language awareness.
3 Lect Hrs 4 Credits
Staff

281 Greek and Roman Civilization I
A consideration of the major periods of ancient civilization through the reading of literary masterpieces supplemented by lectures on cultural and historical backgrounds: including Homer The Tragedians (Aeschylus, Sophocles, Euripedes) Aristophanes, Plato (Greece). Introduction to archeological and artistic materials. This course and Classics 282 initiate the suggested sequence of Classics 'in translation'.
3 Lect Hrs 4 Credits
Staff

282 Greek and Roman Civilization II
A consideration of the major periods of ancient civilization through the reading of literary masterpieces supplemented by lectures on cultural and historical backgrounds: including Cicero Catullus, Virgil, Ovid, Petronius (Rome). Introduction to archeological and artistic materials. This course and Classics 281 initiate the suggested sequence of Classics 'in translation'.
3 Lect Hrs 4 Credits
Staff

283 Greek and Roman Epic
3 Lect Hrs 4 Credits
Staff

284 Greek and Roman Religion and Myth
The analysis, background, and lasting influence of Greek and Roman myths. Some consideration of the ancients' beliefs about divinity; worship and ritual practices. Both primary (ancient authors) and secondary modern sources will be used. This course is suggested as a follow-up to Classics 281-282.
3 Lect Hrs 4 Credits
Staff

285 Greek and Roman Tragedy
A survey of the monumental, dramatic production of fifth century Athens including the works of Aeschylus, Sophocles, and Euripides. Background on period, tragic genre and theatre conventions; influence on Rome and tragedies of Seneca.
3 Lect Hrs 4 Credits
Staff

286 Greek and Roman Comedy
The origins of Western comedy through a reading of selected works; (Aristophanes and Menander-Greece; Plautus and Terence-Rome).
3 Lect Hrs 4 Credits
Staff

287 Women in Greek and Roman Literature: Reflections of a Divided Society
Readings in English translation of works of Greek and Roman literature dealing with women and their place in society.
Prerequisite: Sophomore standing
3 Lect Hrs 4 Credits
Staff

288 Literary Criticism in Antiquity
Readings in English translation of works of Greek and Roman literature dealing with criticism.
Prerequisite: Sophomore standing
3 Lect Hrs 4 Credits
Staff

291 Greek and Roman Historiography
Major Greek/Roman historians. Consideration of development of historical writing, historians' concept of causation, literary techniques; primary and secondary sources.
3 Lect Hrs 4 Credits
Staff

292 Rhetoric: The Art of Persuasion
Examines great speeches from antiquity to the present by using the models, techniques, and standards of public speaking as developed in ancient Athens and Rome.
3 Lect Hrs 4 Credits
Staff

395 Ancient Lyric Poetry
3 Lect Hrs 4 Credits
Staff

478 Independent Study
Selected research topics organized in consultation with individual students
Prerequisite: Permission of instructor and department chairperson
Hrs by Arrangement 3 Credits
Staff

479 Independent Study
Selected research topics organized in consultation with individual students
Prerequisite: Permission of instructor and department chairperson
Hrs by Arrangement 3 Credits
Staff

490 Honors Program
Extensive reading in one broad segment of classical literature culminating in written examination.
Prerequisite: 3.2 major average, 3.0 overall average, Senior standing, permission of instructor
Weekly Conferences 3 Credits
Staff

499 Honors Thesis
A substantive review of a subject approved by the individual instructor.
Prerequisite: Permission of department.
Hrs by Arrangement 3 Credits
Staff

586 Curriculum and Methods Student Teaching — Classics
The issues, principles and methods of secondary school teaching of Latin. Supervision and critique of practice teaching.
Prerequisite: 6 hours education courses and admission to the Teacher Certification Program.
3 Lect Hrs, 20 Lab Hrs
(practice teaching) 9 Credits
Staff

ECONOMICS

Faculty

Arthur MacEwan, Associate Professor, Chairperson; Professor Harold Wolozin; Associate Professors Louis Esposito, Monique Garrity, Daniel Primont, Salvatore Schiavo-Campo, Raymond Torto; Assistant Professors Eric Chester, Mary H. Stevenson

Economics Major

All Economics majors are required to take Economics 100, 155, 200 and 201 and 18 additional credits of junior-senior level courses. Of the additional 18 credits, six must be for "alternative approach" courses; these are courses which expose students to modes of analysis other than the standard neo-classical/neo-Keynesian approach. (Also, by permission of the department up to 6 credits in related disciplines may be substituted for department courses).

100 Economic Literacy
A broad introductory survey of economic principles and institutions. Emphasis on the role of economic principles in understanding and analyzing current economic problems.
3 Lect Hrs 4 Credits
Staff

155 Statistical Methods
A non-calculus introduction to statistical inference. Primary objective is to familiarize the students with common statistical concepts so they will be able to make intelligent evaluations of technical reports. The first half of the course covers probability including common distributions. Second half studies hypothesis testing including T-Tests, goodness of fit, contingency tables, analysis of variance, regression, and correlation.
3 Lect Hrs 4 Credits
Staff

200 Economic Theory I, Macroeconomics
Analysis of the forces determining the level and structure of gross national output, and those government policies which attempt to affect economic activities in the United States.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

201 Economic Theory II, Microeconomics
Analysis of consumer behavior, the theory of production, equilibrium of the firm and the industry, market structures and pricing of factors of production.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

208 History of Economic Thought I
A discussion of the rise and development of systematic economic thought. Both orthodox and heterodox economic ideas are studied in light of the social and historical context in which they developed. The first semester discusses the origins of mercantilist thought. The physiocrats and classical political economy through Marx.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

209 History of Economic Thought II
The second semester (following Econ 208) of the History of Economic Thought begins with the post-classical period in economics. Among the topics covered are the German historical school, the rise in popularity of the marginal concept in economics, some topics in institutional economics and the development of aggregative analysis. Heterodox developments in post-Marxist and non-Marxist thought will also be discussed. Contemporary developments in economic thought will be covered as time permits.

Prerequisite: Economics 208
3 Lect Hrs 3 Credits
Staff

213 Urban Economics
An economic analysis of urban areas and urban problems. Provides an economic explanation of the growth of cities and metropolitan areas together with an understanding of the forces that determine the location, form, and economic structure of cities. A number of contemporary problems are studied in-depth. A political economic analysis is applied to such problems as the property tax, housing and urban renewal, poverty, crime and transportation.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

215 The Political Economy of New England
An examination of the historical origins, present nature, and outstanding problems of our regional economy, with particular emphasis on Massachusetts. Such topics as: historical trends in New Englands's economic structure; causes and consequences of business investment and location; workers and jobs; the political economy of taxes and government spending; state and regional economic policy making; and a critical examination of alternative strategies for economic development.
Prerequisite: Economics 100 or permission of instructor
3 Lect Hrs 3 Credits
Staff

225 American Economic History
This is a course in the economic history of the United States. It begins with a study of the colonial period to make clear the economic basis of the Revolutionary War. The course will then cover the industrial revolution in the United States and the economic basis for slavery and the Civil War. The course will then cover such 20th century issues as the broad scale conflict between capital and labor during and after WW I, the weakness of the U.S. economy during the 1920's, and the Great Depression.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

235 International Economics
The theory of international trade; theory and practice of commercial policy, international finance; the balance of payments, adjustment mechanisms, and alternative monetary systems.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

236 Economic Development
The economic meaning of underdevelopment, evaluation of alternative 'strategies' for economic growth, the role played by different kinds of resources, interaction of the problems of the underdeveloped countries of Africa, Asia, and Latin America with the policies of the developed countries.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

237 The African Economy
Comparative analysis of the economic characteristics and problems of sub-Saharan African countries.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

239 The Latin American Economy
Description and analysis of the economic characteristics and problems of Latin American countries.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

243 The Political Economy of the Black Ghetto
A survey of the economic status of Black Americans. Examination of the social and economic legacy of slavery and reconstruction. Analysis of particular problem areas for contemporary Blacks, e.g. housing, labor market discrimination and education. Evaluation of community economic development, Black capitalism and other strategies for Black economic development.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

249 The Political Economy of Environmental Control
An introductory survey of the impact and challenge of environmental disruption upon the environment and the quality of life in our society. The sources, measurement, and control of pollution as a problem in private and social planning. A transdisciplinary approach including legal, social, political and psychological factors.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

272 Comparative Economic Systems
Relationship between market and non-market mechanisms in the production and distribution of economic resources in four economies. First half devoted to analysis of contemporary American capitalism, the British economy under labor government 1945-1950, and the German economy of 1934-1945. Second half concentrates on planned economy of the U.S.S.R.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

280 The Economics of Health Care
This course is primarily concerned with analyzing the health care delivery system in the United States. Among the topics covered will be the economic, social, and demographic factors determining the demand for health care. The supply of various kinds of health manpower, the financing of health care services and its impact on hospitals, and alternative systems of health care delivery.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

281 Marxist Analysis and Radical Critique of Modern Economic Theory
The central focus of the course is Marxist economic analysis in its classical and modernized forms.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

282 Radical Political Economy
An examination of current economic problems as treated by radical economists. Topics include: class struggle and technological change; value theory and crisis; the development of crisis in the current period; the interaction of national and international crisis; discrimination and class relations.
Prerequisite: Econ 100 or permission of instructor
3 Lect Hrs 3 Credits
Staff

291 Economics of Labor and Collective Bargaining
A brief historical overview of the American

labor movement and institutions traditional economic theories of wage determination and the impact of collective bargaining, a radical critique and alternative theories as applied to low-wage labor markets.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

292 Women and Work
An examination of the participation of women in paid and unpaid work in contemporary America and other countries. Topics include: Historical changes in women's participation in the economy; intercultural comparisons of women's work and concepts of women's work; the relation of women's status to the nature and development of capitalism.
Prerequisite: Economics 100 or permission of instructor
3 Lect Hrs 3 Credits
Staff

294 Sex Segregated Labor Markets
A study of women's inferior economic status, proposals for changes in public policy, and a review of theoretic and empirical work on topics including womens labor force participation, job segregation, wage differences and discrimination.
Prerequisite: Economics 100 or permission of instructor
3 Lect Hrs 3 Credits
Staff

317 The Economics of the Public Sector, Problems in Public Finance
The incidence and effects of taxation, government expenditure programs, and public debt operations of federal, state and local governments.
Prerequisite: Economics 200
3 Lect Hrs 3 Credits
Staff

318 The Economics of State and Local Governments
In developing a systematic framework for analyzing economic problems of state and local governments, this course will cover such topics as the financing of education, revenue-sharing and program budgeting.
Prerequisite: Economics 201
3 Lect Hrs 3 Credits
Staff

330 The Political Economy of Money
An economic analysis of financial institutions and markets in the American economy. Institutional and economic factors in the determination of the money supply are studied, including the commercial banking system, the Federal Reserve system, and the money and capital market. Concentration on the theory and evidence concerning the demand and supply of money and its effects on the American economy. The debate between the monetarists and the fiscalists, and current monetary issues.
Prerequisite: Economics 200
3 Lect Hrs 3 Credits
Staff

332 American Industry: Structure, Conduct and Performance
A theoretical framework for the analysis and evaluation of the performance of American industry, examination of a group of American industries to illustrate usefulness of economic theory in explaining price and output policy, analysis of antitrust activities as a public policy designed to promote better market performance.
Prerequisite: Economics 201
3 Lect Hrs 3 Credits
Staff

345 Income Distribution
This course deals with recent terms in and the current state of income inequality in the U.S. and conceptual and measurement problems. The role and impact of government on the distribution of income is analyzed in detail.
Prerequisite: Economics 100
3 Lect Hrs 3 Credits
Staff

351 Mathematical Economics
Static and dynamic models of economic behavior will be formulated.
Prerequisite: Math 125 or equivalent, Economics 200-201 or permission of instructor
3 Lect Hrs 3 Credits
Staff

352 Econometrics
The traditional simple and multiple linear regression models. Application of these models to estimating both microeconomic and macroeconomic relationships.
Prerequisite: Economics 155
3 Lect Hrs 3 Credits
Staff

353 Advanced Macroeconomics
Theoretical and applied analyses in macroeconomics.
Prerequisite: Economics 200
3 Lect Hrs 3 Credits
Staff

435 The Multi-National Corporations
Impact of the multinational corporation on the economic and social structures of the less developed countries. Topics will include theories of direct foreign investment, nature of host country-foreign firm conflicts, issues in labor relations, impact on economic integration and policy alternatives of the less developed countries. Research project and report required.
Prerequisite: Economics 235 or 236 or 237
3 Lect Hrs 3 Credits
Staff

450 Economic Man and the Image of Man
A transdiciplinary seminar on the image of man in economics compared to the image of man as seen by other disciplines such as philosophy including existentialism, anthropology, sociology, psychology, psychoanalysis, etc.
Prerequisite: Economics 100 or permission of instructor
3 Lect Hrs 3 Credits
Staff

470 Special Topics
3 Lect Hrs 3 Credits
Staff

476 Field Work in Economics
Carefully supervised field work in institutions in the Boston area which do research on economic issues. A written description of the research, periodic conferences with the faculty supervisor, and a final report on the field work experience are required minimally. Open to a limited number of students per semester. The department will place the student in the appropriate institution.
Prerequisite: Permission of the department
3 Lect Hrs 3 Credits
Staff

478 Independent Study
Research and reading in any area in economics: the purpose of this course is to allow the student to do advanced work in an area of economics to which he has already been exposed or to investigate an entirely new area.
Prerequisite: Permission of instructor
Hrs by Arrangement 3 Credits
Staff

480 Seminar
A senior seminar conducted by various mem-

bers of the faculty with concentration on their fields of scholarly interest.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

481 Seminar on Environmental Control
Research and reading in selected topics related to environmental control: social costs, quality of the environment, economics and the law, population, economic growth, interdisciplinary approaches, etc.
Prerequisite: Economics 249 or permission of instructor
3 Lect Hrs 3 Credits
Staff

490 Honors Thesis
Senior Economics majors who have at least a 3.0 grade point average both overall and in their major can, with the approval of the department in the Spring semester or their senior year, write an honors thesis under the direct supervision of a member of the department. The thesis advisor will be chosen by the student and the nature of the research project will be agreed upon by both student and advisor. The thesis advisor and the student will then select a reader who will be available for consultation through the term of the project. Upon completion of the thesis, it will be submitted to the department chairperson who will schedule an oral resume before the Economics Department. The grade for the course and the awarding of honors will be determined by the thesis advisor and reader.
Hrs by Arrangement 3 Credits
Staff

590 Field Practicum in Economics
The practicum is designed to enable a student to earn 15 hours credit-six in his major field-for a semester of work during the academic year with a government agency. The program is designed to integrate this experience into a more general education plan which will require majors to complete a 'pre' course that is substantially related to the proposed internship in the semester preceding and a similarly related 'post' course in the semester following the internship. See department for a specific sample program.
Prerequisite: Approval of Economics Department
Staff 1-6 Credits

ENGLISH

Faculty

Philip Finkelpearl, Professor, Chairperson; Professors Max Bluestone, James Broderick, Mary D. Curran, Mary Anne Ferguson, Edwin Gittleman, Francis Hart, Seymour Katz, Richard Lyons, Emerson Marks, Alvan Ryan, Irvin Stock, Taylor Stoehr; Associate Professors Donald Babcock, Joel Blair, Charles Bowen, Martha Finney Collins, Linda Dittmar, Kenneth Frederick, James Leland Grove, Alan Helms, Charles Knight, John Marvin, Monica McAlpine, Duncan Nelson, Shaun O'Connell, Ronald Schreiber, Mary Shaner, George Slover, James G. Sweeney, Joseph Tribble, Cornelia Veenendaal, Igor Webb, Frederick Willey; Assistant Professors Sara Bershtel, Robert Crossley, Thadius Davis, Albert J. Divver, Harriet Feinberg, Christopher Gay, Susan Horton, Louise Mendillo, Theodore Richer, Lois Rudnick, George Smith; Instructor Marilyn Truesdell; Part-time Associate Professor Ann Berthoff; Lecturer Linda Hunt; Part-time Assistant Professor Carole Robinson; Visiting Assistant Professor Penelope Shaw

Requirements for Graduation

Students majoring in English shall fulfill, in a sequence of their own devising, a minimum requirement of ten courses beyond freshman English, of which at least six must be above the sophomore level. (200-level courses are sophomore courses; 300- and 400-level courses are upper division courses).

In addition, all students, majors and non-majors, who wish to take 300- and 400-level courses, must first take as a prerequisite one of these courses: 206, 207, 211, 212, 213, or 214. Any two of these courses may be counted toward the major.

Occasionally, the prerequisite is waived for a specific upper division course, and this information will appear in all official course lists. The prerequisite may also be waived by the Director of the Major for transfer students who have completed equivalent courses elsewhere or who present equivalent experience. Instructors may waive the prerequisite for students in self-designed majors, for majors in interdisciplinary programs and for students in Colleges III and IV.

Special Topics courses (481-2) and Comparative novelist courses (424-5) may be taken more than once for both University credit and credit toward the major. Creative writing courses, EN300-301, may be repeated but only by majors in creative writing (See below). Humanities courses in literature taught by English faculty and Theatre Arts 251 and 252 may be counted toward the major. Literature courses offered by the foreign language departments, however, cannot count. Majors enrolled in the Teacher Certification Program may count six of their nine credits for the TCP seminar and practice teaching toward the major (the equivalent of two advanced courses).

For the English Major in Creative Writing, four semesters of Creative Writing are required, one of which must be Creative Writing Workshop. Students wishing to take more than one Creative Writing course per term must receive permission of the Creative Writing Committee. Majors in Creative Writing must also fulfill the normal requirements for the English major. English majors who are not Creative Writing majors will be allowed to take Creative Writing courses.

Special Programs: As noted, the department participates in the Teacher Certification Program. In addition, the department offers an Honors Program in English, a two semester program for a small number of seniors whose work in English has been outstanding. Minimum requirements for admission are a 3.0 overall cumulative average, a 3.5 average in English, and recommendations to the English Honors Committee from faculty members acquainted with the applicant's work. Admission is by invitation only, but inquiries may be made to the Director of the Major. Majors may also petition the department to undertake Independent Study in a specialized subject not available in the regular course offering. Independent Study in Advanced Composition and Tutorial is also available by special arrangement for highly qualified juniors and seniors who wish to work closely as a teaching intern with a member of the freshman English faculty. Students are permitted, however, to take no more than one semester of Independent Study of whatever kind.

Tranfer students may count toward the major requirements no more than five English courses taken elsewhere; such courses must have received a grade of C or better and must be beyond the Freshman level. Students needing advice as to how to classify and count such courses should consult the Director of the Major.

These requirements for graduation with an English major shall be in effect for the classes of 1978, 1979, and 1980. Members of the entering freshman class (Fall '78), members of

subsequent classes, and transfer students entering Fall '78 and subsequent semesters should consult the English Major's Handbook, published at each Advance Registration period or members of the English Department, for information about new requirements for the major.

010 Freshman English
Intensive work on fundamentals of grammar, punctuation and rhetoric. Continuous practice in writing and in revising. Restricted to students advised to take this course by the director of freshman English. This course does not count toward the college writing requirement.
3 Lect Hrs 4 Credits
Staff

100 Intensive Workshop in English as a Second Language
This course is given during the summer semester. It includes intensive work in grammar, oral/aural skills, reading comprehension and composition. The course runs for a minimum of 3 weeks and meets daily, Monday through Thursday, for 1½ hours each day. It is open to incoming freshmen and transfer students.
6 Lect Hrs 4 Credits
ESL Staff

100A Oral/Aural Skills for Students of English as a Second Language
This course integrates the companion processes of speaking — oral production — and listening — aural comprehension — to develop communicative competencies necessary to function in the educational and social environment of the urban university. Students are enrolled in the course after having taken the diagnostic test administered by the ESL staff.
3 Lect Hrs 2 Credits
ESL Staff

100B Reading Comprehension for Students of English as a Second Language
This course is designed to improve the student's ability to comprehend textbooks and other material appropriate to university-level studies. Emphasis is on building vocabulary and comprehending sophisticated syntactic structures. Students are enrolled in the course after having taken the diagnostic test administered by the ESL staff. Must be taken in the same semester with 100C.
3 Lect Hrs 2 Credits
ESL Staff

100C Fundamentals of English Grammar for ESL Students
This course is a review of the fundamental grammatical principles of English. Emphasis is on spoken English with written reinforcement of oral patterns. Students are enrolled in the course after having taken the diagnostic test administered by the ESL Staff. Must be taken in the same semester with 100B.
3 Lect Hrs 2 Credits
ESL Staff

101 Freshman English I
Practice in writing on various kinds of topics chosen to develop students' confidence and ability as writers. Readings and materials will vary from section to section, but all sections require a minimum of eight papers.
3 Lect Hrs 4 Credits
Staff

102 Freshman English II
Practice in writing on kinds of topics often encountered in college courses. Readings and materials will vary from section to section, but all sections require a minimum of seven papers. Prerequisite: English 101 or equivalent
3 Lect Hrs 4 Credits
Staff

201 Origins of the Modern Period
Readings primarily in the major literature of the nineteenth century in a variety of genres. Works by such authors as Blake, Wordsworth, Thoreau, Melville, Dickens, Dostoevsky, Ibsen, and Chekhov. Special attention to writing.
3 Lect Hrs 4 Credits
Staff

202 Masterpieces of Twentieth Century Literature
Readings primarily in the major literature of the twentieth century in a variety of genres. Works by such authors as Yeats, Eliot, Joyce, Faulkner, Mann, Gide, Lawrence, Brecht, and Beckett. Special attention to writing.
3 Lect Hrs 4 Credits
Staff

203 Introduction to Shakespeare
A one-semester introduction to Shakespeare's art through the study of a representative group of his plays. Special attention to writing.
3 Lect Hrs 4 Credits
Staff

204 Practical Criticism
Close reading of a limited number of works as an introduction to literary studies. Special attention to writing.
3 Lect Hrs 4 Credits
Staff

205 Women and Men in Nineteenth Century Literature
A study of men and women and their relationships in 19th century literature, mainly British, with special emphasis on the issues of masculine and feminine sexual identity and sexual stereotypes and the social position of men and women as these are treated in popular culture and serious literary works.
3 Lect Hrs 4 Credits
Ms. Hunt

206 Five British Writers
An introduction to English literature with the emphasis on a few writers such as Chaucer, Shakespeare, Milton, Donne and Swift. Special attention to writing. Four papers per semester.
3 Lect Hrs 4 Credits
Staff

210 Introduction to Creative Writing
An introduction to the methods and art of creative writing in fiction, poetry, and drama, for students who are seriously interested in but not necessarily experienced in creative writing. Degree of emphasis on the various genres differs from section to section.
3 Lect Hrs 4 Credits
Creative Writing Staff

211 The Nature of Literature: Emphasis on Poetry
An introduction to the various critical approaches to the understanding and appreciation of poetry. Techniques of close reading with special attention to poetic language and poetic forms as well as the writing of critical and interpretive papers.
3 Lect Hrs 4 Credits
Staff

212 The Nature of Literature: Emphasis on Drama
An introduction to the various critical approaches to the understanding and appreciation of drama. Techniques of close reading with special attention to the language and form of drama as well as the writing of critical and interpretive papers.
3 Lect Hrs 4 Credits
Staff

213 The Nature of Literature: Emphasis on Fiction
An introduction to the various critical approaches to the understanding and appreciation of fiction. Techniques of close reading with special attention to the language and form of fiction as well as the writing of critical and interpretive papers.
3 Lect Hrs 4 Credits
Staff

218 Black Literature in America
A survey of works by Black Americans with attention to the interaction of musical, oral and literary forms in Black expression, slave songs, blues lyrics, sermons, and works by Hughes, Wright, Baraka, Brooks and others.
3 Lect Hrs 4 Credits
Ms. Davis, Ms. Truesdell

240 Intermediate Composition
A composition course offering continued practice in expository and argumentative writing. The emphasis will be on the development of rhetorical concepts — definition, exemplification, comparison, etc. — for both analyitic and compositional purposes, for both critical reading and the organization and development of papers. Readings will be short, complex passages representative of the kinds of discourse met in college classes and texts.
3 Lect Hrs 4 Credits
Ms. Berthoff, Ms. Horton, Mr. Nelson, Mr. Hart

250 Introduction to British Literature I
A survey of major English writers from the Middle Ages to the 18th century, including such authors as Chaucer, Milton, Swift and Pope.
3 Lect Hrs 4 Credits
Staff

251 Introduction to British Literature II
A survey of the major English writers from the 18th century to the 20th century. Emphasizes poetry, some prose documents, and several major novels.
3 Lect Hrs 4 Credits
Staff

252 Introduction to Literature in America I
Major periods, themes, and styles of American literature from the Puritans through the Civil War. Writers such as Bradford, Mather, Franklin, Hawthorne, Melville, Thoreau, Emerson and Whitman.
3 Lect Hrs 4 Credits
Staff

253 Introduction to Literature in America II
Major periods, themes and styles of American literature since the end of the Civil War. Major writers such as Twain, James, Fitzgerald, Hemingway, Frost and Eliot.
3 Lect Hrs 4 Credits
Staff

259 English Drama I
A survey of the development of the drama in English from its medieval origins to the closing of the theaters in 1642. Emphasis on medieval mysteries, moralities, and interludes and on the contemporaries of Shakespeare, including Marlowe, Ben Jonson, Webster, Ford, Kyd, Greene, and Marston.
3 Lect Hrs 4 Credits
Staff

260 Forms of English and American Drama since 1660
Consideration of drama in English since 1660, with reference to earlier dramatic forms and European works where appropriate. Special attention to the variety of techniques uniquely available to the dramatist.
3 Lect Hrs 4 Credits
Staff

280 Teaching Composition to ESL Students
For prospective teachers and tutors. Introduction to the problems presented by students for whom English is a second language. Concentrates primarily upon the correction of errors in written work and the ways to avoid and prevent such errors. Students will plan one sample lesson and participate in tutorial sessions based on actual classroom situations.
1½ Lect Hrs for 8 Weeks 1 Credit
ESL Staff

281 The Teaching of Writing
Exposure to a wide range of ideas on the teaching of writing: analysis and discussion of a number of methods and approaches; and training, through group discussion of sample papers and some role-play, in how to use them.
1½ Lect Hrs for 8 Weeks 1 Credit
Ms. Feinberg

300 Creative Writing I
Techniques and forms of fiction and poetry. Classroom discussion of student manuscripts and frequent conferences.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Ms. Collins, Mr. Frederick, Mr. Marvin, Mr. Richer, Ms. Veenendaal

301 Creative Writing II
Techniques and forms of fiction and poetry. Discussion of student manuscripts and frequent conferences.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Ms. Collins, Mr. Frederick, Mr. Marvin, Mr. Richer, Ms. Veenendaal

302 Advanced Composition: Theory and Practice
Improvement of practical writing skills, exercises in such modes as description, narration, and exposition, to develop analytic and argumentative capacities. Sections vary in emphasis from experimental writing and the composing process, to writing for pre-law students, to techniques of the new journalism, to techniques of research for long papers.
Prerequisite: English 240 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Berthoff, Ms. Ferguson, Mr. Gay

303 Creative Writing Workshop I
The structuring of chapters of a short novel, the thematic relationships in a series of stories or poems, and development of style and point of view.
Prerequisite: Senior standing and permission of instructor
3 Lect Hrs 3 Credits
Creative Writing Staff

304 Creative Writing Workshop II
The structuring of chapters of a short novel, the thematic relationships in a series of stories or poems, and development of style and point of view.
Prerequisite: Senior standing and permission of instructor
3 Lect Hrs 3 Credits
Creative Writing Staff

310 The Medieval Period
The concerns and techniques of Old and Middle English writers including the Beowulf and Gawain poets, the Wakefield dramatist, Gower, Langland, Chaucer, and Mallory.

3 Lect Hrs 3 Credits
Ms. McAlpine, Ms. Shaner, Ms. Ferguson

312 The Renaissance
Major works of literature in the English Renaissance: major authors such as More, Marlowe, Spenser, Shakespeare, Jonson, Donne and Milton. Supplementary readings in Renaissance criticism.
3 Lect Hrs 3 Credits
Mr. Divver, Mr. Slover, Mr. Smith

314 The Neo-Classical Period
The chief intellectual and social currents of the English Restoration and 18th century, and of the works of such writers as Dryden, Swift, Pope, Defoe, Fielding, Johnson, and Burke.
3 Lect Hrs 3 Credits
Mr. Blair, Mr. Knight

315 The Romantic Period
The literature and leading ideas of English Romanticism, with special emphasis on the poetry and prose of Blake, Wordsworth, Coleridge, Byron, Keats, and Shelley.
3 Lect Hrs 3 Credits
Mr. Hart, Mr. Broderick

318 The Victorian Age
Readings in such authors as Carlyle, Tennyson, Dickens, Browning, Newman, Arnold, Hopkins, and Pater, whose work will be studied in the context of the literary, intellectual, and social history of the Victorian Age.
3 Lect Hrs 3 Credits
Mr. Broderick, Mr. Lyons

320 American Romanticism
The growing importance of symbol and ideal in the period from 1836 to 1855. Emphasis on romantic imagination in Poe, Emerson, Thoreau, Hawthorne, and Melville, with readings in the Cambridge school and the minor Transcendentalists.
3 Lect Hrs 3 Credits
Mr. Gittleman, Mr. Katz, Mr. Tribble, Mr. O'Connell

322 The Rise of American Realism
The emergence of realism in the fiction of Twain, James and Howells, and its development into the naturalism of Norris, Crane, Dreiser.
3 Lect Hrs 3 Credits
Mr. Gittleman, Mr. Katz, Mr. Tribble, Mr. O'Connell

324 The Modern Period
Readings in such writers as Eliot, Hemingway, Lawrence, Joyce, Faulkner, Auden, Thomas, Lowell, Yeats, Stevens, and Lessing.
3 Lect Hrs 3 Credits
Mr. Stock, Mr. Nelson

325 Twentieth Century Literary Criticism
An introduction to trends and issues in twentieth century literary criticism with attention to both theoretical and practical concerns. Such topics as the mythic, psychological, structuralist, formalist and sociological approaches, and such issues as the nature of literary change, the idea of technique as discovery, and the function of literature in society and for the individual.
3 Lect Hrs 3 Credits
Mr. Smith

330 History of the English Language
Development of the English language from its beginnings to the present; concepts and techniques of descriptive and historical linguistics.
3 Lect Hrs 3 Credits
Mr. Bowen, Mr. Divver, Ms. Ferguson, Ms. Shaner

332 Old English Language and Literature
The language and literature of England, 449 to 1150. The course will give students a reading knowledge of the language and an introduction to major literary forms.
3 Lect Hrs 3 Credits
Ms. Ferguson

338 Black Poetry
Critical and historical survey of Black poetry from its oral beginnings to the present; minor emphasis on Harlem Renaissance and major emphasis on contemporary Black arts movement; relationships between Black poetry and Black music. Black social and political thought.
Prerequisite: Blk Sty 100, English 218 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

350 Early Celtic Literature in Translation
The mythological and heroic literature of Ireland and Wales in its cultural context, from the earliest written sources through the later Middle Ages.
3 Lect Hrs 3 Credits
Mr. Bowen

352 Chaucer
The *Canterbury Tales* and selected minor works.
3 Lect Hrs 3 Credits
Ms. McAlpine, Ms. Shaner

355 Medieval Lyric and Ballad
Medieval popular verse beginning with Medieval Latin lyrics and student songs in translation and moving through Middle English lyrics to the ballad.
3 Lect Hrs 3 Credits
Ms. Shaner

360 Renaissance Poetry
The poetry of Spenser, Sidney, Shakespeare, Marlowe, and others.
3 Lect Hrs 3 Credits
Mr. Divver, Mr. Smith

361 Shakespeare's Plays I: A Survey
A lecture course on Shakespeare's comedies, history plays, and early tragedies largely from the first half of Shakespeare's career in the theatre. As the first half of a year-long inquiry into the plays, the course emphasizes critical interpretations of individual plays, but it attempts as well to review certain recurring issues in the understanding of Shakespeare's dramatic art in general: theatre history and theatre conventions, theory of comedy and theory of tragedy, the language of verse drama, and the development of the history play.
3 Lect Hrs 3 Credits
Mr. Bluestone, Ms. Bunselmeyer, Mr. Finkelpearl, Mr. Slover

362 Shakespeare's Plays II: A Survey
A lecture course on Shakespeare's problem plays, major tragedies and late romances. As the second half of a year-long inquiry into the plays, the course emphasizes critical interpretations of individual plays, and it assumes that students will have had some experience of Shakespeare's plays, such as those in Shakespeare I. But Shakespeare II may be elected without such experience.
3 Lect Hrs 3 Credits
Mr. Bluestone, Ms. Bunselmeyer, Mr. Finkelpearl, Mr. Slover

363 Elizabethan and Stuart Drama
A critical survey of major plays by Shakespeare's contemporaries.
3 Lect Hrs 3 Credits
Ms. Bunselmeyer, Mr. Slover, Mr. Finkelpearl, Mr. Sweeney

364 Donne and His Contemporaries
Divergent traditions in 17th century poetry, with emphasis on the schools of Donne and Jonson. Poets include Donne, Herbert, Vaughan, Marvell, Jonson, Herrick, Waller and Carew.
3 Lect Hrs 3 Credits
Mr. Divver, Mr. Finkelpearl, Mr. Smith

366 Milton
The major poetry and prose of John Milton. An intensive reading of *Paradise Lost.*
3 Lect Hrs 3 Credits
Mr. Smith

368 English Epic Poetry
A study of the epic and mock-epic tradition in English poetry from the Renaissance to the Romantic period. Some attention to oral roots of epic and to the history and theory of the genre, with close reading of three or four long poems chosen from the work of Spenser, Milton, Dryden, Pope, and Wordsworth.
3 Lect Hrs 3 Credits
Mr. Crossley

370 Colonial American Literature
The literature and thought of the 17th and 18th centuries in America, focused to provide a background for later intellectual and literary developments.
3 Lect Hrs 3 Credits
Mr. Gittleman

371 Eighteenth Century English Fiction
The emergence of the novel and its formal characteristics and social concerns in the works of such early masters as Defoe, Richardson, Fielding, Sterne, and Austen, and in the Gothic and radical novelists.
3 Lect Hrs 3 Credits
Mr. Blair, Mr. Knight, Mr. Crossley, Mr. Gay

380 Blake
Readings in lyrics and prophecies of William Blake.
3 Lect Hrs 3 Credits
Mr. Divver, Mr. Schreiber

381 Nineteenth-Century English Prose Fiction
Major novelists of the 19th century, such as Austen, the Brontës, Dickens, Thackeray, George Eliot, and Hardy.
3 Lect Hrs 3 Credits
Mr. Hart, Mr. Webb

384 Industrialism in 19th Century Literature
Industrialism reflected in English literature from 1760 to 1854. Consideration of authors such as Austen, Blake, Brontë, Gaskell, and Dickens.
3 Lect Hrs 3 Credits
Mr. Webb

387 Victorian Poetry
Selected works by Tennyson, Browning, Arnold, Hopkins, and Hardy.
3 Lect Hrs 3 Credits
Mr. Broderick, Mr. Lyons

389 Black Women Writers
Prose, poetry and criticism by Black women from the eighteenth century to the present. Slave narratives, colonial and abolitionist poetry, novels from the Harlem Renaissance. Works by Brooks, Margaret Walker, Sanchez, Bambara and others.
3 Lect Hrs 3 Credits
Ms. Truesdell

390 The Black Presence in American Literature
Nineteenth and twentieth-century literary texts by black and white writers who wrote with a significant consciousness of Black people in American society.
3 Lect Hrs 3 Credits
Mr. Gittleman, Ms. Truesdell, Ms. Davis

391 Autobiography in America
The major autobiographical works, from colonial to modern times, by such writers as Edwards, Franklin, Thoreau, James, Adams, Fitzgerald, Malcolm X, and Mailer.
3 Lect Hrs 3 Credits
Mr. Gittelman

394 A Critical Decade in American Literature
Major and representative works of an important ten-year period. Emphasis on ways in which styles and themes cohere and on the relationship of history and literature. Decade studied is announced each term during pre-registration.
3 Lect Hrs 3 Credits
Mr. O'Connell, Ms. Davis

396 Literature of the American South
Selected readings in the literary Renaissance of the modern American South from 1920 to the present, including such writers as Faulkner, Warren, Ransom, Tate, Welty, Porter, Styron, and O'Connor. Study of the fiction, poetry and criticism, with emphasis on the fiction.
3 Lect Hrs 3 Credits
Ms. Davis

398 American Detective Fiction
A survey of detective fiction and the crime novel in America. Authors include Poe, Hammett, Chandler, Cain, Spillane, Ross, MacDonald and others. Films will be shown.
Prerequisite: English 101, 102
3 Lect Hrs 3 Credits
Mr. Grove

400 Modern American Poetry
Major trends and figures in 20th century American poetry, from the Imagist Movement and the founding of modernist poetry in 1912 to 1945. Emphasis on Frost, Eliot, Pound, Williams, Stevens.
3 Lect Hrs 3 Credits
Ms. Collins, Mr. Helms

401 Modern British Poetry
British poetry from 1914 to present: poets of the first World War — Sassoon, Jones, Owen, Rosenberg, Flint, Read; poets of the thirties — Auden, Spender, MacNeice; poets writing from 1945 to the present — MacDiarmid, Larkin, Ted Hughes, Jon Silken, Geoffrey Hill, Michael Hamburger, and others.
3 Lect Hrs 3 Credits
Mr. Webb

402 Modern American Fiction
Major American novelists from about 1890 to 1950. The art of such writers as Crane, Dreiser, Wharton, Dos Passos, Hemingway, Fitzgerald, Faulkner, West, Baldwin, and Bellow.
3 Lect Hrs 3 Credits
Mr. Frederick, Mr. Stock

403 Modern Drama
A study of British and American drama in the first half of the 20th century, including works in translation of influential foreign playwrights. Attention to the literary themes, forms, and styles of modern drama, and to aspects of drama in performance. Works by such authors as Ibsen, Chekhov, Shaw, O'Neil, Odets, Beckett, Brecht, Miller and others.
3 Lect Hrs 3 Credits
Ms. Horton, Mr. Babcock

405 Irish Literature
Leading figures of the Irish Renaissance, with special emphasis on Joyce, Yeats, Synge, and

O'Casey.
3 Lect Hrs 3 Credits
Ms. Curran

407 Modern British Novel
The British novel from Joseph Conrad to Anthony Burgess, with stops along the way for Lawrence, Woolf, Forster, Cary, Waugh, Greene, Murdoch, and Lessing.
3 Lect Hrs 3 Credits
Mr. Lyons, Ms. Bershtel, Mr. O'Connell

408 Contemporary American Poetry
A comprehensive overview of living American poets, plus intensive readings in selected writers such as Ashbery, Levertov, Ginsberg, Lowell, Wilbur, Ammons, Baraka, Plath, and Merwin. Discussions of individual poets on their own merits and as exemplars of current poetic schools.
Prerequisite: 1 poetry course
3 Lect Hrs 3 Credits
Mr. Helms

409 Jewish-American Literature
An exploration of literature growing out of the massive immigration of East European Jews to the United States in the late nineteenth and early twentieth centuries: fiction, memoirs, journalism, other forms. Consideration of the East European communities from which the immigrants came, and of parallels in some contemporary Jewish writers of themes of the immigrant generation.
3 Lect Hrs 3 Credits
Ms. Feinberg

412 Contemporary American Fiction
A survey of American fiction since 1950. Works by Baldwin, Bellow, Betts, Gaines, Kelley, Mailer, Malamud, Oates, Olsen, Percy, Reed, Updike, Vonnegut, Wright, and others.
3 Lect Hrs 3 Credits
Ms. Davis, Mr. O'Connell

420 Yeats
Yeats' development as a poet, from his early pre-Raphaelite poetry through his late-modern poems, within the framework of Irish history and literature.
3 Lect Hrs 3 Credits
Ms. Curran, Mr. Divver

421 Henry James
A study of James' major writings, with special attention given to his aesthetic and cultural development.
3 Lect Hrs 3 Credits
Mr. O'Connell, Ms. Collins

422 Faulkner
Faulkner's fiction studied as a major saga of modern man.
3 Lect Hrs 3 Credits
Ms. Davis, Mr. Tribble

423 Fitzgerald and Hemingway
Representative texts by Fitzgerald and Hemingway, their aesthetic achievement and their biographical and historical settings.
3 Lect Hrs 3 Credits
Mr. Frederick, Mr. Divver

424 Comparative Readings in Two Novelists
Comparative readings in the works of major writers of English and American fiction whose novels have social and thematic affinities or present interesting problems of contrast and difference. Pairs of novelists, such as Jane Austen and Charles Dickens, Nathaniel Hawthorne and Herman Melville, and Thomas Hardy and D.H. Lawrence, will vary from semester to semester.
3 Lect Hrs 3 Credits
Staff

425 Comparative Readings in Two Novelists
Comparative readings in the works of major writers of English and American fiction whose novels have social and thematic affinities or present interesting problems of contrast and difference. Pairs of novelists, such as Jane Austen and Charles Dickens, Nathaniel Hawthorne and Herman Melville, and Thomas Hardy and D.H. Lawrence, will vary from semester to semester.
3 Lect Hrs 3 Credits
Staff

440 Contemporary Women Poets
Poetry by contemporary women writers, with some attention to earlier writers and to relevant historical, sociological, and psychological materials.
3 Lect Hrs 3 Credits
Ms. Collins, Ms. Veenendaal

441 The Adolescent in Literature
Such problems as adolescent culture, the rites of passage into adulthood, and the literary expression of these phenomena. Writers such as Wolfe, Salinger, Capote, Knowles, McCullers, Donleavy, Mishima, Golding, Lessing, Moravia, Mauriac, and Sagan.
3 Lect Hrs 3 Credits
Mr. Broderick, Mr. Grove, Ms. Veenendaal

442 Satire
Consideration of the nature and function of satire and of its relation to intellectual attitudes and problems, to social criticism, and to various literary forms. Reading and discussion of a range of major satirical works.
3 Lect Hrs 3 Credits
Mr. Blair, Mr. Knight

443 Narrative in the Novel and Film
The nature of narrative as revealed through a comparative study of selected novels and films. Attention to artists' use of sequence, imagery, point of view, and other aspects of technique.
3 Lect Hrs 3 Credits
Ms. Dittmar

444 Principles and Methods of Literary Criticism
The leading principles and methods of Western literary criticism considered in their historical contexts and in reference to modern literary thought.
3 Lect Hrs 3 Credits
Mr. Marks

448 Language and Literature
An exploration of literary meaning and the character of language as a symbolic form. Special emphasis on the structure of metaphor and consideration of psychological and philosophical aspects of language; basic conceptions of meaning; theories of the origin of speech; problems of intention, expression, and interpretation; background of modern theories of grammar, semantics, and semiotics.
3 Lect Hrs 3 Credits
Ms. Berthoff, Mr. Divver

478 Independent Study I
A course of study designed by the student in conjunction with a supervising instructor in a specialized subject, one ordinarily not available in the standard course offerings. Open to a limited number of students in any one semester. Preference may be given to senior English majors with a cumulative average of 3.0 or above. A written prospectus must be submitted. Register with director of the major.
Prerequisite: Permission of instructor and department chairperson
Hrs by Arrangement 3 Credits
Staff

479 Independent Study II
A course of study designed by the student in conjunction with a supervising instructor in a specialized subject. One ordinarily not available in the standard course offerings. Open to a limited number of students in any one semester. Preference may be given to senior English majors with a cumulative average of 3.0 or above. A written prospectus must be submitted. Register with director of the major.
Prerequisite: Permission of instructor and department chairperson
Hrs by Arrangement 3 Credits
Staff

481 Selected Topics in English and American Literature
Various experimental courses in literature and related topics are offered, normally just once, under this rubric. Current topics are announced each semester during the pre-registration period. (Fall semester).
3 Lect Hrs 3 Credits
Staff

482 Selected Topics in English and American Literature
Various experimental courses in literature and related topics are offered, normally just once, under this rubric. Current topics are announced each semester during the pre-registration period. (Spring semester).
3 Lect Hrs 3 Credits
Staff

488 Senior Seminar I
Classes, limited to fifteen students, undertake in-depth study and discussion of advanced topics in British and American literature. Seminars offered according to interest and demand; qualified students are invited to propose topics. Specific seminars are announced during pre-registration period.
Prerequisite: Senior standing and permission of instructor
3 Lect Hrs 3 Credits
Staff

489 Senior Seminar II
Classes, limited to fifteen students, undertake in-depth study and discussion of advanced topics in British and American literature. Seminars offered according to interest and demand; qualified students are invited to propose topics. Specific seminars are announced during pre-registration period.
Prerequisite: Senior standing and permission of instructor
3 Lect Hrs 3 Credits
Staff

498 Honors Work I
An intensive program of individual study planned with a faculty honors advisor who will provide counsel and direction as needed and desired. In the first semester, the student will undertake a special project or a program of wide reading in areas not adequately covered by the student's courses and independent study. Successful completion of the first semester may require a final oral exam administered by the Honors Board and the advisor, and is a prerequisite for continuance in the second semester.
Prerequisite: For Honors I Senior standing, 3.0 overall and major average, and permission of Honors Committee.
Tutorial Hrs by Arrgt 3 Credits
Staff

499 Honors Work II
An intensive program of individual study planned with a faculty honor advisor who will provide counsel and direction as needed and desired. The second semester focuses on an honors paper, arising from study during the first semester, written with the approval and under the supervision of the honors advisor. Departmental honors will be awarded on the basis of both semesters of work, the oral exam, and the evaluation of the honors paper by the Honors Board.
Prerequisite: Distinction in Honors I, and permission of the Honors Committee
Tutorial Hrs by Arrgt 3 Credits
Staff

586 Curriculum and Methods Student Teaching — English
The issues and principles of the learning and teaching of secondary school composition, literature, and language. Supervision and critique of practice teaching in the schools.
Prerequisite: Admission to teacher certification program
3 Lect Hrs, 20 Lab Hrs
(Practice Teaching) 9 Credits
Ms. Feinberg

FRENCH

Brian Thompson, Associate Professor, Chairperson; Professors Jean Collignon, John MacCombie, Michel Phillip; Associate Professors Jeanne Ambrose-Grillet, Alfred Proulx, Gerald C. Volpe; Assistant Professors Rose Abendstern, Marcelle Altieri, John Anzalone, Mary Lee Evans Kimball, Suzanne Relyea, Monique Stern; Instructor Marilyn Sorenson

Requirements for Graduation

French majors may choose among several options. Three courses are required of all majors: French 301, 302, and 303, which students are urged to elect in their sophomore year. The remaining minimum of 21 credits at the junior-senior level must include 3 credits in either an advanced language course in French or an advanced civilization course in French plus 3 credits in each of three different periods of French literature. Beyond these general distribution requirements, students may concentrate their course work on literature, civilization, advanced language, or translation.

The department offers an advanced certificate in translation as well as a concentration leading to a certificate (See "Program in Translation" for a description of the program).

Students participating in the department's TCP Program may count six credits out of the nine earned in the program toward fulfilling major requirements. Moreover, they are urged to take, if at all possible, at least three additional credits in French civilization.

Honors Thesis: A student may receive credits toward the total 30 major credits for acceptable work on an honors thesis written in French under the direction of an advisor from the French faculty. See department chairperson.

It is strongly recommended that French majors elect the following: 1) at least two years of course work in a second foreign language; 2) two semesters of French History or one semester of French History and one semester either of French Music or French Art.

At the end of the senior year, majors should take a comprehensive oral exam in French covering three specific fields of French literature and culture (the fields to be chosen by the student), to be eligible for one of the French department prizes.

It is recommended that students — particularly those planning to teach — take the educa-

tional testing service (ETS) language proficiency exams in the Spring of their senior year.

101 Elementary French I
Intensive practice in the four language skills, with an audio-lingual approach, for students who have no creditable training in French.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Ms. Ambrose-Grillet and Staff

102 Elementary French II
A continuation of French 101. Intensive practice in the four language skills, with an audio-lingual approach, for students who have completed French 101 or its equivalent.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Ms. Ambrose-Grillet and Staff

103 Beginning French for Reading Knowledge
This course is designed specifically for rapid acquisition of ability to read French texts in the original language. Both literary and non-literary texts will be used. All discussions, papers and examinations will be in English. Only students with no creditable training in French language will be admitted. This course does not fulfill any part of the language requirement.
3 Lect Hrs 4 Credits
Ms. Sorenson

115 Basic Oral French in Review
Intensive oral practice and drill of basic linguistic patterns in French for students who have had training in reading and writing French but little or no aural-oral work, or who need to improve their oral skills to qualify for intermediate French. Students from the 101-102 sequence may not take this course for credit. Students completing 115 would normally continue with 201 or 202. The student, if his knowledge permits, may continue with French 301.
Prerequisite: Background in the language and placement exam. See department.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Thompson and Staff

125 Intensive French I
Intensive work in the four language skills with concentration on an audio-lingual approach and an introduction to literature, for students with no creditable previous training in French who intend to continue their study of French language and literature at an advanced level. Students completing this course satisfactorily will be allowed to enter directly into courses at the 200 level and above.
(Equivalent to one year of elementary French)
Prerequisite: Minimum score of 600 on the SAT verbal or high upper-class course average
8 Lect Hrs, 2 Lab hrs 8 Credits
Ms. Relyea and Staff

150 French Semester
Elementary and intermediate French in one semester, for students with no previous creditable training in French who wish to acquire rapidly a high degree of competency in written and spoken French. In addition to classroom contact, there will be some special films, and slide showings, and a French dining table, in an effort to bring the student as close as possible to an experience of total immersion.
Fulfills the language requirement
Prerequisite: No previous creditable training in French, and departmental permission
16 Lect Hrs, 4 Lab Hrs
Along with 4 Hrs of Language
Lab Drill 16 Credits
Ms. Sorenson, Mr. MacCombie

201 Intermediate French I
Intensive review and further study of grammar and audio-lingual skills with correlated intermediate-level readings in French literature.
Prerequisite: French 102 or equivalent.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

202 Intermediate French II
Continuation of French 201. Intermediate-level readings in French literature or culture.
Prerequisite: French 201 or equivalent
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff
This course may be used to fulfill the second semester of intermediate-level language requirement

203 Intermediate French III
Readings in French on contemporary France and French-speaking cultures. Subjects will include politics, current events, and art and musical reviews. Readings from newspaper and magazine articles and cultural texts rather than purely literary texts. Discussion in French.
Prerequisite: French 115, or French 201 or equivalent
4 Lect Hrs 4 Credits
Staff
This course may be used to fulfill the second semester of intermediate-level language requirement

204 Intermediate French for Reading Knowledge
This course is designed to perfect the students reading knowledge of French so that he can read in a wide range of disciplines with accuracy and speed. Texts will be chosen from French newspapers and magazines, works dealing with contemporary subjects — e.g. Lacouture's biographies and short stories by contemporary authors. Discussions papers and examinations will be in English.
Prerequisite: French 103, 115, 201 or 3 years of high school French or the equivalent
3 Lect Hrs 4 Credits
Staff
This course may be used to fulfill the second semester of intermediate-level language requirement

214 Advanced Readings in French Culture
This course is designed for students who have a solid command of French for reading. It permits them to use their knowledge in the discussion and study of various aspects of the French-speaking world, based on texts written in French and including topics such as the arts, politics, urbanism, ecology, women's rights. All discussions, papers and exams will be in English.
Prerequisite: French 202, 203, 204 or permission of instructor
3 Lect Hrs 3 Credits
Staff
This course may be used to fulfill the second semester of intermediate-level language requirement

215 Advanced Readings in French Literature
Designed for students who read French with speed and accuracy, this course treats various aspects of French literature — the tradition of French poetry, French-language African and American literatures, survey of French masterpieces, among others. Topics will vary from semester to semester. Readings will be in French. All discussions, papers and exams will be in English.
Prerequisite: French 202, 203, 204 or permission of instructor
3 Lect Hrs 3 Credits
Staff
This course may be used to fulfill the second semester of intermediate-level language requirement

226 Intensive French II (Equivalent to Year of Intermediate French)
Intensive work in the four language skills with concentration on an audio-lingual approach and an introduction to literature. Students completing this course satisfactorily will be allowed to enter directly into courses at the 300 level and above.
Prerequisite: Departmental permission
8 Lect Hrs, 2 Lab Hrs 8 Credits
Ms. Relyea and Staff

240 French Conversation
Daily practice in conversation on a wide variety of subjects, with a view toward building vocabulary and fluency.
Prerequisite: French 202 or equivalent and permission of instructor
3 Lect Hrs 4 Credits
Mr. Thompson and Staff

262 Contemporary French Theatre
Some of the masterpieces of French theatre from Giraudoux to the theatre of the absurd. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Mr. Collignon

264 French Existential Literature
Major works by Camus, Sartre, De Beauvoir, Marcel. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Mr. Proulx, Mr. Thompson

265 Masterpieces of French Literature
Selected major texts from the Middle Ages to the end of the nineteenth century. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Staff

266 The French Cinema
Thematic and formal trends in the French cinema, in the context of relevant developments in literary, cultural and political history. Films by Vigo, Bunuel, Renoir, Clair, Dulac, Cocteau, Resnais, Carne, Truffaut, Godard and Rohmer. No knowledge of French required. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Mr. Anzalone

267 Nature and Structure of French Comedy
Eight French plays, 17th through 20th century, two classical comedies and some readings in theory and criticism. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Ms. Relyea

271 The Feminine Presence in French Literature
Selected literary texts from the Middle Ages to the 20th century by men and women writers whose work shows significant consciousness of the formalization of gender roles in art and society, with specific emphasis on the evolution of various feminine roles as related to social and literary context. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Ms. Relyea

300 Diction I
Drill in pronunciation and practice of diction, based on texts selected from the poetry and theatre of various periods of French literature. Emphasis on acquisition and perfecting of standard French pronunciation and intonation.
Prerequisite: Permission of instructor
2 Drill Hrs 1 Credit
Mr. MacCombie

301 Traduction et Stylistique
Intensive study of grammar, stylistics and composition. Problems of idiomatic translation based on contemporary English and American texts.
Prerequisite: French 202 or equivalent or permission of instructor.
3 Lect Hrs 3 Credits
Staff

302 Initiation à la Litterature et à la Culture Française-Depuis le Moyen Age Jusqu'a la Fin du 17e Siècle
French Literature and culture from the Middle Ages to the end of the 17th century. selected readings from *Chanson de Roland*, courtly novels, lyric poetry of the Middle Ages and Renaissance, Rabelais, Montaigne, Corneille, Racine, Moliere, Lafontaine, with lectures on the cultural background of the periods studied.
Prerequisite: French 301 or permission of instructor
3 Lect Hrs 3 Credits
Staff

303 Initiation a la Litterature et a la Culture Française-18e et 19e Siècles
French literature and culture of the 18th an 19th centuries. Selected readings from: Di derot, Marivaux, Voltaire, Rousseau Chateaubriand, Lamartine, Hugo, Vigny Musset, Balzac, Baudelaire, Zola, with lec tures on the cultural background of the perioc studied.
Prerequisite: French 301 or by permission c the instructor.
3 Lect Hrs 3 Credi
Staff

304 Colloque
Colloquium to be conducted in French on topic chosen by a group of 5-10 students i consultation with one or two instructors of the choosing.
Prerequisite: Fluency in spoken French ar permission of instructor
2 Hrs Each Wk or 3 Hrs Each Wk
for 8 Wks 1 Cred
Staff

320 Cours Avancé de Conversation
Intensive practice in conversation on a wic variety of subjects, for students having alreac acquired a very solid knowledge of spoke French and who wish to continue perfectir their skills.
Prerequisite: Solid command of French ar permission of instructor
3 Lect Hrs 3 Credi
Staff

334 Poetes et Chansonniers
The tradition of the chanson in France, from tl Medieval troubadours to modern times, wi contemporary author-composers: Brassen Brel, Barbara, and others.
Prerequisite: French 201-202 or permission instructor
3 Lect Hrs 3 Credi
Mr. Thompson

351 Freedom, Evil and Guilt: Religious Dimensions in Modern French Literature
Major texts treating perennial human pr lems such as God and human freedom, s fering, and evil, responsibility and guilt, s itude and solidarity from a variety of vie points. Authors include Bernanos, Cam Mauriac and Sartre. No knowledge French required. English translation. M fulfill part of language requirement.

3 Lect Hrs 4 Credits
Mr. Thompson

360 Nineteenth Century French Novel in Translation
Readings and discussion of major novels of the period from Madame de Stael, Stendhal, Hugo, Balzac, to Flaubert, Zola, Bourget and Huysmans. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Staff

361 Modern French Novel in Translation, 1900-1935
Works by Proust, Cocteau, Gide, Saint-Exupery and Malraux. Readings in English; no knowledge of French required. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Mr. Proulx and Staff

362 Modern French Novel in Translation, 1935 Until the Present
Works by Sartre, Camus, Mauriac, Robbe-Grillet and Genet. No knowledge of French required. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Mr. Proulx and Staff

363 The Black Soul and the Theatre
A comparative approach to the image of the Black man in contemporary theatre. An analytical and comparative study of various French and American plays by white and Black French-speaking writers and also of American plays by white and Black American writers, all of them dealing with the experience of the Black man. English translation. May fulfill part of the language requirement.
3 Lect Hrs 4 Credits
Staff

400 Histoire de la Langue Française
Survey of the evolution of French from spoken Latin to the modern language with analysis of texts from each major period.
Prerequisite: French 301, 302, 303 or equivalent or permission of instructor
3 Lect Hrs 3 Credits
Ms. Grillet

401 Moyen Age — le Heros et l'Anti-Heros
Literature as a reflection or a distortion of society from the eleventh to the fifteenth century, with emphasis on man in revolt against or in harmony with his milieu — Roland, Lancelot, Tristan, Adam, Reynard the Fox, Saintly King Louis, Pathelin, François Villon.
Prerequisite: French 302, 303 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Altieri

405 Poesie Lyrique et Didactique Medievale
A study of the origins, development and evolution of lyric poetry from the troubadours to the rhetoriqueurs with special emphasis on the themes of love and marriage and the changing image of woman. Works will be read in modern versions, but students will have the opportunity to compare the modern texts to the originals in old French.
3 Lect Hrs 3 Credits
Ms. Altieri

411 Theme et Version
Translation from English into French, from French into English. Analysis of the grammatical and stylistic problems of the texts involved.
Prerequisite: French 301, 302 and a course in French Literature or permission of instructor
3 Lect Hrs 3 Credits
Staff

420 Renaissance — de l'Humanisme Triomphante à l'Humanisme Sceptique
The humanist gentleman, moralist, lover, and skeptic. Selections from the works of Rabelais, Ronsard, Dubellay, Montaigne, D'Aubigne.
Prerequisite: French 302, 303 or permission of instructor
3 Lect-Disc Hrs 3 Credits
Mr. Volpe, Mr. Anzalone

431 La Litterature du Dix-Septieme Siècle: Theatre et Philosophes
Works from 17th century authors including Descartes, Corneille, Racine, Molière and Pascal.
Prerequisite: French 302, 303 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Relyea

432 La Literature du 17e Siècle: Prose et Poesie
Works by Bossuet, Boileau, la Fontaine, Madame de Lafayette, la Rochefoucauld, Madame de Sevigne, la Bruyère.
Prerequisite: French 302 or 312 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Relyea

434 Imagination Baroque — Reserve Classique
Readings from 17th century French theatre, poetry, novels and philosophy structured around the two major and opposing literary trends of the period. Baroque, Precieux and Burlesque writers will also be studies. Authors include Malherbe, Voiture, D'Urfe, Corneille, Scarron, Madame de Lafayette, Boileau, la Fontaine.

Prerequisite: French 302 or 303 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Relyea

441 Theatre et Roman du 18e Siècle
Plays by Marivaux and Beaumarchais, and novels by Voltaire, Diderot, J. J. Rousseau, Laclos, Prevost, among others.
Prerequisite: French 302, 303 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Stern

442 La Pensée Philosophique du 18e Siècle
Philosophical texts by Montesquieu, Diderot, Voltaire, Rousseau, L'encyclopedie.
Prerequisite: French 302 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Stern

451 French Romanticism, Preromanticism and Poets
Chateaubriand and romantic poets including Lamartine, Hugo, Vigny Musset, Nerval.
Prerequisite: French 302 or 303 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Abendstern

452 Roman et Theatre Romantiques
The French romantic theatre and novel

through works by Hugo, Vigny, Musset, Sand, Balzac, Stendhal.
Prerequisite: French 302, 303 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Abendstern

455 Poesie Symboliste
Works selected from the poetry of Baudelaire, Verlaine, Rimbaud, and Mallarme.
Prerequisite French 302 or 303 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. MacCombie

456 Poesie du 20e Siècle
Works by Claudel, Apollinaire, Valery, Eluard, among others.
Prerequisite: French 302, 303 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. MacCombie

464 Roman du 20e Siècle
Discussion of representative 20th century novels, by writers such as Camus, de Beauvoir, Beckett, Butor, Robbe-Grillet, Sarraute, and Duras.
Prerequisite: French 302 and 303 and permission of instructor.
3 Lect Hrs 3 Credits
Mr. Collignon, Mr. Proulx

465 Theatre du 20e Siècle
Discussion of representative 20th century plays by such dramatists as Jarry, Feydeau, Claudel, Giraudoux, Motherlant.
Prerequisite: French 302 and 303 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Collignon

468 Litterature Noire d'Expression Française
Selected prose and poetry of representative Black authors in French speaking countries, focusing on the works of Senghor, Cesaire, Damas, and Camara-Laye.
Prerequisite: French 302, 303 or permission of instructor
3 Lect Hrs 3 Credits
Ms. Altieri

475 Civilisation Contemporaine
The background of contemporary France, today's France, historical political, social, economic, cultural.
Prerequisite: French 302, 303 or equivalent
3 Lect Hrs 3 Credits
Staff

476 Civilisation Française I
The background of France from the Middle Ages to the end of the 17th century: historical, political, social, economic, cultural.
Prerequisite: French 302, 303 or equivalent
3 Lect Hrs 3 Credits
Staff

477 Civilisation Française II
The background of France during the 18th and 19th centuries: historical, political, social, economic, cultural.
Prerequisite: French 302, 303 or equivalent.
3 Lect Hrs 3 Credits
Staff

478 Independent Study
Selected research topics organized in consultation with an individual or with a small group of students.
Prerequisite: Permission of instructor and chairperson of department
Hrs by Arrangement 3 Credits
Staff

479 Independent Study
Selected research topics organized in consultation with an individual student or with a small group of students.
Prerequisite: Permission of instructor and chairperson of department
Hrs by Arrangement 3 Credits
Staff

482 Seminaire: Existentialisme
Works by Gide, Malraux, Camus, Sartre, de Beauvoir, Beckett, and Céline as they reveal existentialist concepts and their development.
Prerequisite: French 302, 303 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Proulx, Mr. Thompson

486 Seminaire: L'Art d'Ecrire
A creative writing seminar in French poems, plays, short stories, essays. Professional criticism and discussion.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Mr. Philip, Ms. Relyea

487 Seminaire — Un Auteur Français Important
In-depth analysis of an author or of the major works of an author to be specified each year
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

489 Le Cinema Français
Thematic and formal trends in the French cinema, in the context of relevant developments in fiction, drama and criticism, films by Vigo, Bunuel, Clair, Dulac, Cocteau, Carne Chabrol, Truffaut, Godard, Resnais, and Rohmer. Students having received credit for French 266 may not take French 489 for credit. For the same course not requiring knowledge of French, see French 266.
3 Lect Hrs 3 Credit
Mr. Anzalone

490 Special Topics
Study of special topics varying each semester according to instructor.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credit
Staff

498 Honors Thesis in French
Independent and original investigation and study under the supervision of a faculty advisor. An oral defense of the thesis before members of the French department is required.
Prerequisite: Departmental permission.
Hrs by Arrangement 3 Credit
Staff

499 Honors Thesis in French
Independent and original investigation and study under the supervision of a faculty advisor. An oral defense of the thesis before members of the French department is required.
Prerequisite: Departmental permission.
Hrs by Arrangement 3 Credit
Staff

586 Curriculum and Methods Student Teaching — French
The issues, principles and methods of secondary school French language teaching. Supervision and critique of practice teaching.
Prerequisite: 6 hours education courses and admission to the teacher certification program
3 Lect Hrs, 20 Lab Hrs
(Practice Teaching) 9 Credit
Mr. Anzalone

xxx Diction II
Drill in pronunciation and practice of diction with emphasis on acquisition and perfecting standard French pronunciation and intonation

ased on texts studied in any one of the ad-anced literature courses offered by the French epartment, Diction II may be taken in con-nction with any of the major courses in rench literature after consultation and by ar-ngement with the instructor. If the instructor f any given literature course does not choose imself to teach Diction II in conjunction with is course, the option will still be open to stu-ents if they can make arrangement with nother member of the French faculty for him take on the responsibility of the Diction mponent of the course.
rerequisite: Permission of instructor
Drill Hrs 1 Credit
taff

ERMAN

itta Jo Horsley, Associate Professor, Chair-erson; Professors Alfred Hoelzel, Robert H. baethling; Associate Professors Luise Bron-er, Lynn F. Dhority, Friedrich P. Ott; Assis-nt Professors Andrew Boelcskevy, Sandra human

equirements for Graduation

The major in German has the following re-uirements applicable to students in the class of 980 and following:

rerequisites: Intermediate language profi-ency:
German 200 Intermediate German I
German 202 Intermediate German for Read-ing, and
German 206 Intermediate Audio-Lingual German
Majors are advised to take both Ger 202 and Ger 206 in the same semester.

pper Level Requirements: A total of 10 mester courses, including:
German 301, 302 Advanced German I, II
German 330, 331 Introduction to German Literature I, II
Advanced work: 2 advanced (400-level) lit-ature courses including at least one seminar
Civilization requirement:
2 courses in history and civilization of Ger-many, as follows: History 227 *or* German 150 *or* German 250 *plus* History 228 *or* German 251 *or* German 263 *or* History 371

Two additional courses in German Litera-e, culture, or advanced language (including nslating skills). Appropriate German or Humanities courses given in English. Indepen-dent Studies courses may be counted here, sub-ject to approval by the major advisor.

Honors in German

For graduation with honors in German stu-dents must have a 3.0 cumulative average at the end of their senior year. They must petition by the mid-term of their penultimate semester to the department to be allowed to write an honors paper in Independent Study. Honors will be awarded on the basis of 1) their overall performance in their major courses and 2) their work in Independent Study.

101 Elementary German
For students with no creditable training in German. Work in the four language skills with particular emphasis on listening and reading comprehension.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

102 Elementary German
Continuation of German 101. Work in the four language skills with particular emphasis on listening and reading comprehension.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

115 Intensive German
A multi-media approach, with concentration on listening and reading comprehension. Open to students with no previous creditable knowledge in German. Good aptitude for learning foreign language is essential. Upon completion, students may enter German 201 and, in special instances, 202.
Prerequisite: Permission of instructor
8 Lect Hrs, 3 Lab Hrs 8 Credits
Ms. Horsley, Mr. Ott

200 Intermediate German I
Development of skills of speaking, aural understanding, reading, and writing on the intermediate level. Review and further study of grammar; vocabulary building; readings of varied materials; practice in oral and written expression.
Prerequisite: German 102 or equivalent
4 Lect Hrs 4 Credits
Mr. Boelcskevy, Staff

202 Intermediate German for Reading II
Intensive grammar review and intensive reading and vocabulary building. Reading in the fields of humanities, natural and social sciences.
Prerequisite: German 200 or equivalent.
4 Lect Hrs 4 Credits
Staff

206 Audio-Lingual Intermediate German
Designed for students who want more than a reading knowledge of German. In addition to a thorough grammar review and new vocabulary building, considerable attention will be given to the oral skills. Strongly recommended for any students thinking of majoring in German and for those who wish a more complete command of the language.
Prerequisite: German 200 or equivalent
4 Lect Hrs 4 Credits
Staff

230 Writing Workshop
Designed to help students develop writing skills within the context of a course oriented toward the study of German literature. It will be offered in translation, although alternate copies of the text in German will be made available for those students who are able to read them in the original. Students will examine three German novellas and write three 3-page papers which will be analyzed by both the instructor and by the students. The course will be conducted on a seminar-style basis, meeting two hours weekly for five weeks. The workshop will be offered twice each semester. (Check with the department for dates.) No knowledge of German required.
Prerequisite: Permission of instructor.
5 Seminar Sessions 1 Credit
Ms. Shuman

244 Germanic Mythology
Norse and Teutonic literature with emphasis on the Eddas, Southern Germanic poems, the Icelandic Saga, the nature of myth, and its survival in post-pagan times. Conducted in English.
3 Lect Hrs 4 Credits
Mr. Ott

250 German Civilization from the Reformation to Goethe's Death.
Expressions of German life and thought in literature, philosophy and theology, in the visual arts, and in music. Broad aspects of cultural developments, such as the rise of individualism, will be discussed in their European context, whereas specific developments, such as musical techniques from Bach and Beethoven, will be considered in their more specifically German tradition. Whenever possible German and European cultural heritages will be

viewed in their interrelation, as for example, the courtly period of the 12th century. Readings will range from the 12th century Germanic epic. The Song of the Nibelungs to Luther's writings to Goethe's Faust. There will be a number of sessions devoted to the musical and visual arts. In English.
3 Lect Hrs 4 Credits
Mr. Spaethling

251 German Civilization from Romanticism to WW I
Focus will be on romanticism, the rise of German nationalism, and the revolutionary trends of the period. Among the authors read will be Novalis, Buchner, Heine, Marx, Nietzsche, Rilke, Mann, Freud, Hesse. Music and the visual arts will also be discussed.
3 Lect Hrs 4 Credits
Mr. Dhority

253 Goethe and His Age
The course will move from Lessing and Kant through the periods of storm and stress and classicism to early romanticism covering a time span of 1750-1832. In particular the course will present the lives, thoughts and some representative works of Goethe (Egmont, Iphigenia, Hermann and Dorothea, poetry). Schiller (William Tell), Kleist (Marquise, Earthquake in Chile) as well as poetry from Holderlin and Novalis. There also will be discussion on the musical life of the period, especially the music of Mozart (Bastien, Don Giovanni, church and piano music, symphonies 25 and 40) and Beethoven (Symphonies 3 and 5, late quartets and 'Grosse Fuge').
3 Lect Hrs 4 Credits
Mr. Spaethling

255 Faust — Origin, Legend and the Literary Tradition.
The Faustian tradition: the historical person, the legend and its cultural implications and a four century literary tradition. Works will include the Fausts of Marlowe, Goethe and Mann. Conducted in English.
3 Lect Hrs 4 Credits
Mr. Hoelzel

260 Aspects of Modern German Literature
Selected masterpieces of modern German literature including Mann, Hesse, Kafka and Brecht. Conducted in English.
3 Lect Hrs 4 Credits
Staff

263 Germany in the 20th Century — Weimar and Nazi Culture
A survey of the cultural and creative trends of the Weimar and Nazi periods, with an examination of their roots in romanticism, folkish authors and the youth movement. Focus on such exponents as Thomas and Heinrich Mann, the Expressionists, Weltbuhne, the Bauhaus group, and Nazi 'Kultur'. Conducted in English.
3 Lect Hrs 4 Credits
Mr. Ott

264 Brecht and the Modern Theatre
Brecht's emergence as a significant force in the modern theatre. An examination of his major plays and theory of the epic theatre with selected readings of contemporary European and American dramatists. Conducted in English.
3 Lect Hrs 4 Credits
Mr. Boelcskevy

265 Hesse, Mann and the Modern Romantic Imagination
Major works of Hesse and Mann in the context of both historical and contemporary romanticism. Conducted in English.
3 Lect Hrs 4 Credits
Mr. Dhority

266 East versus West in Contemporary German Literature
The emergence of the two Germanies as reflected in the works of Grass, Weiss, Uwe, Johnson, Brecht and other representative writers. Conducted in English.
3 Lect Hrs 4 Credits
Staff

267 Jung and Hesse
Key works of both authors will be read in order to explore the questions of mutual influences, similarities and differences. Particular emphasis will be placed on the authors' complementary impact on the humanistic concerns of our day.
3 Lect Hrs 4 Credits
Mr. Dhority

268 German Theatre
The tradition of the German theatre from the Middle Ages to the present. Among the playwrights read will be Lessing, Goethe, Schiller, Kleist, Buchner, Hauptmann, Hofmannsthal, Brecht. Course will also include informal classroom performances of some of the dramatic material.
3 Lect Hrs 4 Credits
Mr. Boelcskevy

269 Rilke in English
The course will explore as full a range of Rilke's work as translation will permit. The pivotal novel, the notebooks of Malte Laurids Brigge, and a generous selection from Rilke's correspondence dealing particularly with the influence of Rodin and Cezanne as well as the famous letters to a young poet will occupy a considerable portion of the course. The poetry studied will include Duino Elegies and sonnets to Orpheus. Readings and discussions in English.
3 Lect Hrs 4 Credits
Mr. Dhority

271 Modern Austrian Literature
The Austrian literary tradition from the last decades of the Austro-Hungarian empire to the present, as distinct from the German. Discussion of typical themes and their treatment in works of Schnitzler, Hofmannsthal, Kafka Rilke, Musil, Handke and other contemporaries. Readings in English translation. No knowledge of German required.
3 Lect Hrs 4 Credits
Mr. Boelcskevy

272 Austria, 1890-1934: Literature and Culture
The Austrian cultural and literary tradition from the last two decades of the Austro-Hungarian empire to the end of the first republic (1934). Examination of the intellectual life in its social and political context. Works of Freud, Mach, Wittgenstein, Schnitzler, Hofmannsthal, Musil, Handke, Klimt, and other contemporaries will be discussed. Course will meet German major requirements.
3 Lect Hrs 3 Credit
Mr. Grossmann, Mr. Boelcskevy

273 Protest and Revolt in German Literature
Selected analysis of works in German literature since Goethe, dealing with themes of protest against established authority ranging from individual insurrection to political revolution.
3 Lect Hrs 4 Credit
Mr. Hoelzel

274 Dreams and Visions in German Literature
A literature in translation course focusing on works in which a dream and/or vision figure prominently. A wide variety of literary selec

ons from various periods and genres including eadings from C.G. Jung. Dreams will be xamined both as a universal and particularized anifestation of the creative unconscious hich seeks to transmit multi-leveled messages the dreamer. Their role as part of the creative rocess itself and then as part of the work of art ill be analyzed. The course will investigate to hat extent dreams can precipitate a work of art nd/or to what extent and purpose they are nterwoven into the fabric of the literary piece.
Lect Hrs 4 Credits
Is. Shuman

75 Images of Men and Women in German Literature
he course will investigate changing roles and titudes toward, and myths about the sexes as flected in German literature from the Middle ges to the present. Readings in English. No nowledge of German required.
Lect Hrs 4 Credits
Is. Horsley

80 Special Topics in German Literary and Cultural History
nnounced topics which will generally focus a particular author, work or historical moent.
Lect Hrs 4 Credits
aff

01 Advanced German I
tensive training in German language skills yond the intermediate level; the course will mbine work in composition, conversation, vanced grammar, and stylistic analysis of xts.
erequisite: German 202, 206 or equivalent
Lect Hrs 3 Credits
s. Bronner, Staff

02 Advanced German II
continuation of Ger 301. Besides the basic ements of the core program (composition, nversation, grammar) students will select a ecial focus for additional work, from one of ee areas: literary analysis, translation, prepation for study abroad.
erequisite: German 301 or equivalent
Lect Hrs 3 Credits
aff

30 Introduction to German Literature I
presentative masterpieces of German prose, ama and poetry from the Middle Ages to oethe will be read and discussed in cultural d historical context. Taught in German.
3 Lect Hrs 3 Credits
Staff

331 Introduction to German Literature II
Continuation of Ger 330. Will cover representative masterpieces of German prose, drama and poetry from Goethe to the present day. Taught in German
3 Lect Hrs 3 Credits
Staff

425 Goethe and Pre-Romanticism
Major works of Goethe and Schiller with background readings in the German enlightenment, storm and stress and German classicism.
3 Lect Hrs 3 Credits
Mr. Hoelzel

427 Goethe's Poetry
A study of the range and style of Goethe's poetry from the early to the late years. Readings and discussions in German.
Prerequisite: Good reading and listening comprehension of German
3 Lect Hrs 3 Credits
Mr. Dhority

431 Rilke in German
A study of Rilke's major works, including Das Stundenbuch, Neue Gedichte, Duineser Elegien, Sonetten an Orpheus, Malte and selected letters. Readings and discussions in German.
3 Lect Hrs 3 Credits
Staff

435 German Romanticism
The major phases of the German romantic movement.
3 Lect Hrs 3 Credits
Staff

440 German Drama from Lessing to the Present
Selected major German dramas from the 18th century to the present.
3 Lect Hrs 3 Credits
Mr. Bolecskevy

445 The German Novelle
The development of the German novelle from the 19th century to the present.
3 Lect Hrs 3 Credits
Staff

446 German Lyric Poetry
The development of the German lyric from its beginning to the present.
3 Lect Hrs 3 Credits
Staff

455 Naturalism, Neo Romanticism, and Expressionism
German literature of the left, the right, and the pacifist movement from 1888 to 1918. Readings from such representative writers as Hauptmann, George, Rilke, Hofmannsthal, Wedekind and the early Brecht.
3 Lect Hrs 3 Credits
Staff

460 German Literature after World War I
Major works by such authors as Mann, Kafka, Brecht, Hesse, Frisch, Dürrenmatt, Grass. Their relation to 20th century intellectual life of Germany and the West.
3 Lect Hrs 3 Credits
Staff

462 Brecht
Bertolt Brecht is the most popular playwright of this century. He is politically engaged, yet, at the same time an accomplished poet. Reading his works in the original German rather than in translation will lead to an appreciation of his poetic skill and diction. We will illuminate his clever plays with every possible semantic facet of word or phrase. Brecht's best known plays, poems, stories, — Kalender — Geschichten — and an introduction to his theories for theatre, and poetry, will be offered during the course. Offered bilingually, comparative reading of English and German texts.
3 Lect Hrs 3 Credits
Ms. Bronner

465 German Post-War Prose from East and West
Works by Böll, Grass, Johnson, Bienek, Lind and Wolf.
3 Lect Hrs 3 Credits
Staff

478 Independent Study
Selected research topics organized in consultation with individual students.
Prerequisite: Permission of instructor and chairperson of the department.
Hrs by Arrangement 1-3 Credits
Staff

479 Independent Study
Selected research topics organized in consultation with individual students.
Prerequisite: Permission of instructor and chairperson of the department.
Hrs by Arrangement 1-3 Credits
Staff

480 Seminar — Lessing and his Time
G. Lessing as playwright and literary critic seen against the intellectual and religious background of his time.
3 Lect Hrs 3 Credits
Mr. Spaethling

490 Senior Seminar
The purpose of the senior seminar is that of integration. Here the major student will have the opportunity of learning how to apply literary analysis and appreciation and all the pertinent skills acquired in prerequisite courses. At the same time, this seminar will guide the student towards independence, leading him/her to either independent study or an honors course during his/her last semester before graduation. Prerequisite: German 330, 331 or permission of instructor
1.5 Hrs 3 Credits
Staff

GREEK

(See Classics for Major Requirements)

101 Elementary Greek I
Fundamentals of ancient Attic Greek. With Greek 102 (fall), designed to complete a standard, basic textbook.
3 Lect Hrs 4 Credits
Staff

102 Elementary Greek II
A continuation of Greek 101. Fundamentals of ancient Attic Greek; designed to complete a standard, basic textbook. (spring).
3 Lect Hrs 4 Credits
Staff

113 Accelerated Greek
Equivalent of Greek 101/102 in one semester.
4 Lect Hrs 4 Credits
Staff

211 Intermediate Greek
Review of basic principles and introductory reading of prose authors: Plato, Lysias. (fall).
3 Lect Hrs 4 Credits
Staff

222 Homer
Introductory reading in the *Iliad* or *Odyssey*: continuation of Greek 211; credit may be applied towards any departmental major (Spring).
3 Lect Hrs 4 Credits
Staff

301 Attic Orators
Selected readings in Lysias, Demosthenes, and other major orators; background and scholarship.
3 Lect Hrs 3 Credits
Staff

302 Plato
Readings in selected dialogues; background and scholarship.
3 Lect Hrs 3 Credits
Staff

303 Aeschylus
Reading of selected tragedies; background and scholarship.
3 Lect Hrs 3 Credits
Staff

304 Sophocles
Reading of selected tragedies; background and scholarship.
3 Lect Hrs 3 Credits
Staff

305 Euripides
Readings of selected tragedies; background and scholarship.
3 Lect Hrs 3 Credits
Staff

306 Aristophanes
Reading of selected comedies; background and scholarship.
3 Lect Hrs 3 Credits
Staff

307 Herodotus
Reading of selected books of the histories; background and scholarship.
3 Lect Hrs 3 Credits
Staff

308 Thucydides
Reading of selected books of the histories; background and scholarship.
3 Lect Hrs 3 Credits
Staff

309 Lyric Poetry
Selections from lyric and elegiac poets; background and scholarship.
3 Lect Hrs 3 Credits
Staff

310 Epic Poetry
Advanced reading of Homer's *Iliad* and/o *Odyssey*; background and scholarship. Re quired for departmental major in Greek an combined major in Greek/Latin.
3 Lect Hrs 3 Credit
Staff

311 Prose Composition
Advanced exercises in Greek grammar, syntax and vocabulary; composition in Greek based o ancient models.Suggested for departmenta majors.
3 Lect Hrs 3 Credit
Staff

478 Independent Study
Hrs by Arrangement 1-3 Credit
Staff

479 Independent Study
Hrs by Arrangement 1-3 Credit
Staff

490 Honors
Hrs by Arrangement 1-3 Credi
Staff

491 Honors
Hrs by Arrangement 1-3 Credi
Staff

HISTORY

Faculty

Richard H. Powers, Professor, Chairperson Commonwealth Professor Francis L Broderick; Professors Thomas N. Brown, Pau A. Gagnon, Walter Grossmann, William A Percy, Roger W. Prouty, Eric Robinson; As sociate Professors Feroz Ahmad, Spencer D scala, Paul Faler, Clive Foss, Linda Gordo David Hunt, Esther R. Kingston-Mann, Fra ces Malino, Susan Schneider, Lester Sega Marshall Shatz, Renee N. Watkins; Assista Professors Hatimali Amiji, Edward Berkowi JFK Fellow, Alison Conner, Timothy McCa thy, Malcolm Smuts, James C. Turner, Sherr Wyntjes; Instructor Robert Hannigan

Requirements for Graduation

Department of History requirements for t student majoring in History, effective for t Class of 1980 and beyond.

Majors are required to take at least

ourses (40 to 42 credit hours) from those of-
ered by the Department, including specific
equirements as follows:

semesters of Introductory History of Western Civilization (History 111 and 112, or the equivalent 8
semesters of Introductory History of the United States (History 265 and 266) 8
semester of Research and Methods course (History 480 or 481 or 482) 3
semester of upper-level course work in European History prior to 1789.....3
semesters of upper-level course work, one of which must be in European History since 1789, the other of which must be in other than European and United States History 6
semesters of additional, elective courses, two of which must be upper-level courses .....6 or 8
12 courses 40 or 42 credit hours

07 Ideas and Morality in the West: 500 B.C. to 1700 A.D.
survey of ideas in their historical contexts. ncient Greece, 12th and 13th century Europe, nd the birth of science in the period around 500 will be stressed.
Lect Hrs 4 Credits
Is. Watkins

11 Western Civilization I
he historical development of European civiliation, ideas and institutions to 1789, including merica's place in the Western world. Train-g in oral and written expression.
Lect Hrs 4 Credits
aff

12 Western Civilization II
he historical development of European civiliion, ideas and institutions since 1789, inuding America's place in the Western world. raining in oral and written expression.
Lect Hrs 4 Credits
aff

13 Modern World History I
ne history of traditional and early modern cieties, 1400-1800. Includes Africa, China, ussia and Western Europe.
Lect Hrs 4 Credits
s. Kingston-Mann

14 Modern World History II
story of modern Western industrial societies d the non-Western world, 1800 - present.
Lect Hrs 4 Credits
s. Kingston-Mann

121 Technology and Civilization I
An introduction to the crucial developments in medieval and early modern science and technology, including cathedral-building, water mills, wind-mills, crop rotations, improved use of horses, the compass, ship-design and printing. Some assessment of the impact of Asiatic and Arabic technology on the Western world. The scientific revolution and its consequences for technology-scientific instruments, the steam-engine, and the switch to coal. Leads on to History 122.
3 Lect Hrs 4 Credits
Mr. Robinson

122 Technology and Civilization II
An introduction to the part played by technology in the industrialization of the Western world. Deals with standardization, rationalization and flow-processes and examines agricultural technology as well as manufacturing processes. Compares British and American experience.
3 Lect Hrs 4 Credits
Mr. Robinson

123 Revolutions in Modern History
An introduction to the French, Russian, Chinese and Vietnamese revolutions, and to Marxism in Europe. Training in written and oral expression.
3 Lect Hrs 4 Credits
Ms. Gordon, Mr. Hunt

130 Nationalism and National Movements: The Irish, Jews and Arabs
The first half of this course will examine the roots and trace the developments of nationalism in 19th and 20th century Europe. The second half will concentrate on the Irish, Jewish and Arab national movements. Throughout,an attempt will be made to perceive the common denominators among these three movements.
3 Lect Hrs 4 Credits
Ms. Malino

160 Introduction to African Civilization I
The internal dynamics of pre-colonial African societies arising from the Bantu migrations. The rise and fall of the kingdoms of Ghana, Mali and Songhai, the city-states of Kilwa and Zanzibar, the development of the slave trade, and the influence of religion on tribal societies. Training in oral and written expression.
3 Lect Hrs 4 Credits
Mr. Amiji

161 Introduction to African Civilization II
The interaction between the West and Africa in the nineteenth and twentieth centuries. The African response to European imperialism, social and economic changes under colonialism, the development of nationalism and the struggle for independence, Africa and Afro-American, and Pan-Africanism. Training in oral and written expression.
3 Lect Hrs 4 Credits
Mr. Amiji

165 East Asian Civilization I
An introduction to the traditional civilizations of China and Japan from the earliest times to the arrival of the Western powers. Training in oral and written expression.
3 Lect Hrs 4 Credits
Mr. Bix, Ms. Conner

166 East Asian Civilization II
The political, social, economic and intellectual problems resulting from the Western impact on China and Japan, as well as Korea and Vietnam. Training in oral and written expression.
3 Lect Hrs 4 Credits
Mr. Bix, Ms. Conner

207 Introduction to Classical Archeology
Offered jointly by the art and history departments. A survey of the art, archeology, and history of Bronze Age Greece and Asia Minor. Introduction to the methods and aims of archeology and to the geographical and historical background of the period. The major area cultures — the Minoan civilizations, Mycenaean Greece, Troy, and the Hittite empire.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Foss

210 Women in European History since 1700
This course will survey women in European history since 1700. By examining the many roles of women, students will consider the contradictions between women's lives and work in theory and actuality. Students will have the opportunity to research one topic extensively, either in-depth or utilizing a comparative approach.
3 Lect Hrs 4 Credits
Ms. Wyntjes

220 History of Education
A survey of theory and practice in education in the Western world from ancient times to the

Departmental Courses and Requirements

present, with emphasis on public systems of education since the 18th century revolutions.
3 Lect Hrs 3 Credits
Mr. Gagnon

265 American History I
A survey of American History from 1763 to the Civil War. The expansion and consolidation of the American Union, the development of national and international policies and the cultural and economic forces that shaped them.
3 Lect Hrs 4 Credits
Staff

266 American History II
A survey of American history from the Civil War to the present. Expansion and consolidation of the American Union, the development of national and international policies and the cultural and economic forces that shaped them.
3 Lect Hrs 4 Credits
Staff

275 History of Boston
A general survey from 1630 to the present emphasizing the variety of people who gave this seaport its special character and prominence in American History.
Prerequisite: Junior standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Prouty

301 Greek History
A survey of the origin, rise and development of ancient Greek civilization from the arrival of the Greeks in Europe until the death of Cleopatra. Emphasis on the rise of the Greek city-state and the spread of Greek culture to the East.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Foss

302 Roman History
The Roman State from its origins until the triumph of Christianity. Republic and Empire will receive equal attention. Closely related to History 208, the two courses provide a continuous history of the Mediterranean world from about 700 B.C. to 300 A.D.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Foss

304 Early Middle Ages
Medieval history from Marcus Aurelius to approximately 1000 A.D.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Percy

305 Later Middle Ages
Medieval history from 1000 A.D. to the Italian Renaissance.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Percy

307 Age of the Renaissance and Reformation I
Men, ideas, and institutions of 14th century through 16th century Europe.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Ms. Watkins

308 Age of the Renaissance and Reformation II
Men, ideas, and institutions of 14th century through 16th century Europe.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Ms. Watkins

310 Age of Baroque
Europe in the seventeenth century. In the midst of religious and political struggles, a new world order emerges. Transformation from traditional thought to new scientific categories and a flowering of new expressions in the arts.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Grossmann

313 Europe in the Nineteenth Century I
A political, social and cultural history of Europe from 1815 to 1871, including the history of each major European nation.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Powers

314 Europe in the Nineteenth Century II
A political, social and cultural history of Europe from 1871 to 1914. Including the history of each major European nation.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Powers

315 Europe in the Twentieth Century I
Political, economic, social, and intellectua history of Europe, with attention to extra European influences, from 1900 to 1939.
Prerequisite: Junior standing or departmenta approval.
3 Lect Hrs 3 Credit
Mr. Gagnon

316 Europe in the Twentieth Century II
Political, economic, social, and intellectua history of Europe, with attention to extra European influences, from 1939 to the present.
Prerequisite: Junior standing or departmenta approval.
3 Lect Hrs 3 Credit
Mr. Gagnon

320 Tudor-Stuart England
An introduction to English history from th high Middle Ages. Emphasis on the politica crises of the sixteenth and seventeenth cen turies, to 1689.
Prerequisite: Introductory history or de partmental approval.
3 Lect Hrs 3 Credit
Mr. Smuts

321 England in the Age of Revolution
English history from 1689 to 1901 with em phasis on the transformation of life and institu tions in the eighteenth and nineteenth centuries
Prerequisite: Introductory history or de partmental approval.
3 Lect Hrs 3 Credit
Mr. Smuts

322 Britain and the Empire since 1850
Britain and the Empire from their zenith i 1850 to the present; Pax Britannica to Con monwealth and Common Market. The histor of modern Britain is inextricably interwove with that of the Empire. This course describe the Empire at its height, traces the events home and abroad that weakened Britain's ro in the world and led to the Empire's dissolutic and to Britain's return, after 350 years, to int gration with Europe.
Prerequisite: Junior standing or department approval
3 Lect Hrs 3 Credi
Mr. Prouty

323 Russian History I
A survey of the political, economic, social ar

ntellectual development of Russia, from Kiev
o the emancipation of the serfs in 1861.
rerequisite: Sophomore standing or de-
artmental approval
Lect Hrs 3 Credits
Ir. Shatz, Ms. Kingston-Mann

24 Russian History II
survey of the political, economic, social and
tellectual development of Russia, from 1861
rough the Soviet Union in the second World
Var.
rerequisite: Sophomore standing or de-
artmental approval
Lect Hrs 3 Credits
r. Shatz, Ms. Kingston-Mann

28 German History to 1815
edieval origins of Germany, the Reforma-
on, the rise of Brandenburg-Prussia, the Ger-
an englightenment, Germany and the French
evolution
erequisite: Sophomore standing or de-
rtmental approval.
Lect Hrs 3 Credits
r. Bookbinder

29 German History since 1815
erman liberalism, nationalism, conservatism
the nineteenth century, revoluition of 1848,
ification, World War I, Weimar, and the Nazi
riod.
erequisite: Sophomore standing or de-
rtmental approval
Lect Hrs 3 Credits
r. Bookbinder

30 Early Modern France: Evolution of the Ancien Regime
cial, political, and intellectual currents and
stitutions in France from the Renaissance to
e end of the Ancien Regime.
erequisite: Sophomore standing or de-
rtmental approval
Lect Hrs 3 Credits
r. Segal

31 France since 1789
e development of parliamentary institutions
d crises in their social, economic and intel-
tual settings and France's role in the world.
erequisite: Junior standing or departmental
proval
Lect Hrs 3 Credits
. Gagnon

333 The History of Italy, from Renaissance to 1870
Developments in Italy from the end of the Renaissance to 1870, with emphasis on the eighteenth century and the Risorgimento.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Di Scala

334 The History of Italy: 1870 to the Present
Italian history since 1870. Including an examination of Giolittian, Fascist and Republican Italy.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Di Scala

335 Spain and Portugal since 1469
Examines why Spain and Portugal played leading roles in world history until the 17th century and the reasons for their decline, as well as comparing Iberian enlightened despotism, liberalism and conservatism, industrialization, fascism, and neocolonialism with their counterparts in other areas.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Staff

337 Jewish History, Antiquity to the Early Middle Ages
Political, social and intellectual development in Jewish society from Biblical antiquity to the early centuries of the Christian era. Attention to the interaction with ancient Near Eastern, Graeco-Roman, and Christian societies and cultures.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Segal

338 Jewish History, from the Spanish Expulsion to Modern Statehood
Political, social and intellectual development in Jewish society in Western and Eastern Europe and the Near East from the late 15th century to the creation of Israel in 1948. Attention to Jewish experience in the age of absolutism and mercantilism, Marranos and Messianism, Polish jewry and Hassidism, enlightenment, emancipation and 19th century responses to modernism, Jewish experience in the 20th century.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Segal

339 Irish History: 1688 to the Present
The forces and movements in the development of Irish nationalism and the achievement of national independence.
Prerequisite: Sophomore standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Brown

340 Economic History of Western Europe to 1750
A survey emphasizing the interrelationship of economic life and demographic, social, political, and religious development. Particular emphasis on the development of capitalism and laissez-faire.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Robinson

341 Economic History of Western Europe since 1750
A comparative study of the evolution of industrial economics and societies in Western Europe from the 18th century to the 20th. It concentrates on the major nations of the European economic community — France, Germany, Britain and Italy — but makes some comparisons with Russia and the U.S.A. business organization. Agricultural change, technological innovation, state intervention in economic systems and the relationships between management and workers will be among the topics considered.
Prerequisite: Junior standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Robinson

342 History of European Ideas I
Main currents of European thought in the seventeenth and eighteenth century.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Powers

343 History of European Ideas II
Main currents of European thought in the nineteenth and early twentieth century.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Powers

346 The Expansion of Europe: 1400 to 1900
Traces the preconditions of the intellectual, geographic, and commercial expansion of Europe from the 15th to the 18th centuries. It will review the Age of Discovery and examine the relation between ideology, trade, and colonization, the impact of non-European civilizations upon Western Europe, and the rise and decline of the mercantile empires of Portugal, Spain, England, and the Netherlands.
Prerequisite: Introductory history
3 Lect Hrs 3 Credits
Ms. Wyntjes

347 Diplomatic History of Europe: 1815 to 1914
The diplomacy of the Concert of Europe, Bismarck, the Eastern question and imperialism leading to the outbreak of war in 1914.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Ahmad

350 The Middle East: 622 to 1517
Interaction between Islamic society and the West from the rise of Islam in 622 to the Turkish conquest of Egypt.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Ms. Malino

351 The Middle East: 1517 to the Present
The Middle Eastern response to the West in the age of European expansion and domination.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Ms. Malino

355 Colonial Latin America
The imposition of Spanish and Portuguese institutions on the pre-Columbian civilizations in the New World, and the economic, social, religious, political, and cultural institutions that developed in Latin America. Emphasis on the differences and similarities between colonial Latin America and other contemporary and later empires.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Ms. Schneider
Note: This course is a requirement for the Latin American Studies Concentration.

356 Latin America since Independence
The histories of Mexico, Argentina, Brazil and Cuba since 1800. Emphasis on British and American economic expansion into these countries during the 19th and 20th centuries, and the resulting political and social consequences.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Ms. Schneider
Note: This course is a requirement for the Latin American Studies Concentration.

360 Traditional China
A survey of traditional China from ancient times to about 1800, with emphasis on cultural, intellectual, and social developments.
Prerequisite: Junior standing
3 Lect Hrs 3 Credits
Ms. Conner

361 History of Modern China
A survey of the political, social, and intellectual development of China from 1800 to the present, with emphasis on Sino-Western relations and twentieth century reform and revolution.
Prerequisite: Junior standing
3 Lect Hrs 3 Credits
Ms. Conner

362 Modern Japan
An historical survey of economic, social, political and cultural developments in Japan from 1800 to the present, special consideration of economic and foreign policy problems.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Staff

364 From Rebellion to Independence: India since 1857
Intended to be an introduction to the Indian subcontinent as it emerged from British rule to independence. Designed for students interested in this area and the Third World, regardless of major. The framework of the course is historical but it also deals with the social and religious institutions such as the caste system, as well as economic and political change in a traditional society.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Ahmad

365 Problems in African Civilization
Intensive study of the interaction betwee Islam as a socio-political and spiritua phenomenon and traditional African societies Problem oriented, rather than chronologica approach. The origins and spread of Islam t sub-Saharan Africa, patterns of Islamizatior growth of centralized political institutions, th role of Muslim brotherhoods, Mahdism an Messianic movements, development of Afr Islamic literature and scholarship —Swahil Hausa and Arabic, and the influence of Islar on modern nationalism and Pan-Africanism.
Prerequisite: Sophomore standing or de partmental approval
3 Lect Hrs 3 Credi
Mr. Amiji

366 History of East Africa
Modernization and social change in Kenya Uganda and Tanzania. Such topics as th proto-nationalist movements of the nineteent century, the politics of survival in the inter-wa period, the problems of European and India settlers, the development of political partie and liberation movements, particularly th Mau Mau movement, African socialism, an the problems of ethnicity and national integra tion.
Prerequisite: Sophomore standing or de partmental approval
3 Lect Hrs 3 Credi
Mr. Amiji

370 American Colonial History: the Earliest Settlement to 1763
The English background of emigration and se tlement. The evolution of imperial institution American social, economic, and religious de velopment. Emphasis on political ideas, in stitutions and behavior in the 17th and 18 centuries.
Prerequisite: Sophomore standing or de partmental approval
3 Lect Hrs 3 Credi
Mr. Chu

371 Age of the American Revolution: 1763 to 1789
The development of the conflict with Britai 1763-1776, the Revolutionary War and its e fects, the forming of Republican institutions f state and federal governments.
Prerequisite: Sophomore standing or de partmental approval
3 Lect Hrs 3 Credi
Mr. Chu

72 The Early Republic
urvey and analysis of the early development f the United States as an independent federal epublic. Focus will be on key issues: civil berties, slavery and the first emancipation, ederalist economic policy, neutrality, war, institutional growth (Presidency, Congress, udiciary, political parties), and change in the ocial, ideological, and cultural environment. rerequisite: Sophomore standing or departmental approval
Lect Hrs 3 Credits
taff

74 The Age of Jackson and Lincoln
social, economic, political and cultural history of the United States from 1815 to 1861.
rerequisite: History 265 or 266 junior standing
Lect Hrs 3 Credits
taff

79 The United States in the Twentieth Century: 1900 to 1937
merican politics and culture from the Progressive period through the New Deal.
rerequisite: History 266 or permission of instructor
Lect Hrs 3 Credits
Ir. Brown, Mr. Broderick

80 The United States in the Twentieth Century: 1937 to the Present
merican politics and culture from the New eal to the present.
rerequisite: History 266 or permission of instructor
Lect Hrs 3 Credits
Ir. Brown, Mr. Broderick

82 History of American Thought to the Civil War
eas in America — religious, scientific, political, social and economic — from the colonial eriod to the Civil War.
rerequisite: History 265 and 266 or junior anding
Lect Hrs 3 Credits
r. Turner

83 History of American Thought from the Civil War to the Present
eas in America — religious, scientific, political, social and economic — from the Civil War the New Deal.
Prerequisite: History 265 and 266 or junior standing
3 Lect Hrs 3 Credits
Mr. Turner

384 American Social History to the Civil War
The emergence of social institutions in America from the establishment of colonies to the mid-nineteenth century.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Staff

385 American Social History from the Civil War to the Present
The American Dream as it has related to institutions and ethnic groups in twentieth century U.S.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Staff

386 History of American Foreign Policy: 1763 to 1900
Survey of United States foreign policy and relations with the rest of the world, from the colonial period to the end of the nineteenth century. Emphasis on domestic sources of foreign policy and U.S. expansionism.
Prerequisite: Junior standing or departmental approval.
3 Lect Hrs 3 Credits
Mr. Hannigan

387 History of American Foreign Policy: The Twentieth Century
Survey of United States foreign policy and diplomatic relations with other powers from the turn of the century to the 1960s. Emphasis on domestic sources of foreign policies and on general topics such as World Wars I and II, Cold War diplomacy, and the debate over America's role in world affairs.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Hannigan

392 History of Working People in America
A history of working people in America, from colonial times to the present, with special emphasis on industrialization, its economic and social impact on workers, and the ways in which working people respond to those changes.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Faler

394 History of Feminism
The political and cultural rebellion of women in England and America from the late 18th century to the present, including the contemporary women's liberation movement, women's rights movements, and women's participation in the labor movement, the socialist and communist movements, abolitionist struggle and the civil rights movement.
Prerequisite: Intro History, a Women's Studies course and Junior standing
3 Lect Hrs 3 Credits
Ms. Gordon

396 Topics in the History of Boston
An intensive study of selected topics in the history of Boston.
Prerequisite: History 275 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Prouty

398 Constitutional History of the United States
This course proposes to examine the changing constitutional structure — national, and federal as it applies to states, and the triune separation of powers within the national government — from 1781 to 1978.
Prerequisite: Sophomore standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Broderick

399 The American University
A review of the traditional function and character of higher education in American society, and an examination of recent fundamental changes in both.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Powers

404 Medieval Law
The principles underlying the evolution of law in Western Europe. Emphasis on England during the Middle Ages. Some of the legal concepts and procedures necessary in understanding medieval history and common law. Recommended for pre-law students.
Prerequisite: Junior standing or departmental approval

3 Lect Hrs 3 Credits
Mr. Percy

405 The Medieval Mind
Through literary, philosophical, and religious masterpieces from the period, this interdisciplinary seminar probes the culture which created the modern West and considers the differences between its modes of thought and moral values and ours.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Percy

423 The Russian Revolution: 1917
The origins and development of the Russian Revolution, with special investigation of Stalin's rise to power, his methods of emphasis on the questions of war, property, and constitutional freedom that divided pre-Revolutionary opponents of the Tsarist regime in 1917.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Ms. Kingston-Mann

425 History of the Russian Intelligentsia: Eighteenth Century to the Present
Rise and development of political dissidents in Russia, from the origins of the intelligentsia in the eighteenth century to Stalin's purges of the 1930's.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Shatz

426 Literature and History: Russia 1825 to 1917
The interaction between Russian literature and Russian history between 1825-1917.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Ms. Kingston-Mann

427 Contemporary Currents of Protest in the Soviet Union
An examination of the rise of criticism of official policies since the death of Stalin in 1953.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Shatz

428 The Germanys: 1945 to the Present
This course traces the emergence of two distinct German states from a common heritage.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Bookbinder

429 Hitler: A Man and his Times
A focus on the life and career of Adolf Hitler to elucidate an important period in German and European history.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Mr. Bookbinder

431 The French Revolution
History of the efforts of the French people to overthrow the social system of the old regime and to replace it with one more suited to their needs.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Hunt

440 The Industrial Revolution in Britain
The social and economic effects of science and technology during the industrial revolution and consequences for education. The implications for some of Britain's industries of the changeover to steampower and new chemical processes. Special case study of the engineering firm Boulton and Watt. No special knowledge of science required.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. Robinson

442 History of European Socialism
A survey of Socialist ideas and movements from the era of the French Revolution to the present. Emphasis will be placed on the reading of major texts in the socialist tradition.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credits
Mr. McCarthy

443 Marx and Freud: Studies in Modern Intellectual History
A comparison of the approaches of Marx and Freud to political and social problems. Some attention will be given to thinkers e.g., Herbert Marcuse, who have sought to combine the insights of Marx and Freud.
Prerequisite: Junior standing or departmental approval
3 Lect Hrs 3 Credi
Mr. McCarthy

444 The Conservative Tradition in European Thought
A history of conservative thought in Europ since the French Revolution. Emphasis will b on conservatism as a distinctive perception human nature and the human condition rath than as a political ideology in the narrow sens Among the figures to be discussed are Burk Demaistre, deTocqueville, J.F. Stephe Ortega y Gasset, and T.S. Eliot.
3 Lect Hrs 3 Credi
Mr. McCarthy

446 History of Feminist Thought
An upper level survey of feminist theor European and American. It will concentra primarily on the development of femini thought between the late eighteenth century ar the present. Reading such theorists Wollstonecraft, Mill, Gilman, Marx, and co temporary women's liberation writers.
Prerequisite: Intro History, a Women's Studi course and Junior standing
3 Lect Hrs 3 Credi
Ms. Gordon

447 Artisans and Peasants in Early Modern Europe
An analysis of the consciousness, the fami and community organization, and the politic activity of peasants and artisans in 17th a 18th century Europe.
Prerequisite: Junior standing or department approval
3 Lect Hrs 3 Credi
Mr. Hunt

450 Modernization, Nationalism and Revolution in the Middle East I
Impact of the Western World on the Midd East and the Middle Eastern response, esp cially the latter, from 1798 to 1914. Compar tive analysis of the different societies of t area and their political, economic and soci structures.
Prerequisite: Intro History, preferably His 1 or 112
3 Lect Hrs 3 Cred
Mr. Ahmad

451 Modernization, Nationalism and Revolution in the Middle East II
Impact of the Western World on the Midd East and the Middle Eastern response, esp cially the latter, from 1914 to the prese

omparative analysis of the different societies
the area and their political, economic and
cial structures.
erequisite: Intro History, preferably His 111
112.
Lect Hrs 3 Credits
r. Ahmad

78 Special Topics
tensive study of topics in History. Course
ntent and credit will vary each semester and
ill be announced during the advance registra-
n period. Fulfills historical studies core re-
irement.
rs by Arrangement 1-4 Credits
aff

79 Special Topics
tensive study of topics in History. Course
ntent and credit will vary each semester and
ill be announced during the advance registra-
n period. Fulfills historical studies core re-
irement.
rs by Arrangement 1-4 Credits
aff

0 Seminar in European History
problem course intended to give training in
storical research and writing. The field of
ropean study varies each semester.
Lect Hrs 3 Credits
aff

1 Seminar in American History
problems course intended to give training in
storical research and writing. The field of
nerican study varies each semester.
Lect Hrs 3 Credits
aff

2 Seminar in Latin-American History
problem course intended to give training in
storical research and writing. The field of
tin-American study varies each semester.
Lect Hrs 3 Credits
s. Schneider

8 Independent Reading
ided reading and research, may be used in
partmental honors program.
erequisite: Senior, History major
s by Arrangement 1-3 Credits
aff

9 Independent Reading
ided reading and research, may be used in
partmental honors program.
erequisite: Senior, History major
Hrs by Arrangement 1-3 Credits
Staff

HUMANITIES

114 Masterpieces of Western Literature I
Selected works in various genres and from various periods by such major writers as Homer, Sophocles, Dante, Shakespeare, Goethe, Tolstoy, and Faulkner. Special attention to writing.
3 Lect Hrs 4 Credits
Ms. Bershtel, Mr. Bluestone, Mr. Slover

115 Masterpieces of Western Literature II
A selected survey of literary masterpieces by such writers as Dante, Chaucer, Machiavelli, Cervantes, Shakespeare, Milton, Molière, and Goethe. Foreign language texts in translation. Topics include the literary representation of good and evil, the nature of the tragic figure, crime and punishment, and the relations between individual and state.
3 Lect Hrs 4 Credits
Mr. Bluestone

201 Introduction to Linguistics
An introduction to the modern study of language viewed as a crucial factor in understanding the human mind. It will provide the scientific tools to describe language. Recommended for all language-related specialties as well as for general education.
3 Lect Hrs 3 Credits
Ms. Ambrose-Grillet

202 Bilingualism
The student will investigate the political, cultural, sociological, educational, and linguistic implications of multilingualism. This course should be particularly relevant for those students whose childhood language was not English and for those who are learning foreign languages or are going to teach bilingual children.
3 Lect Hrs 3 Credits
Ms. Ambrose-Grillet

203 Language Across Time
How language and language-change have been viewed across time; processes and patterns of linguistic change, linguistic reconstruction in the Indo-European family; the birth of modern linguistic theory.
3 Lect Hrs 3 Credits
Mr. Houben

249 African Literature
An introduction to contemporary African fiction and poetry. Works by such writers as Armah, Kgositsile, Laye, Achebe, and others will be examined in the context of the social and political background from which they emerged, with particular emphasis on the situation and role of the writer in Africa today.
3 Lect Hrs 3 Credits
Ms. Truesdell

254 Romanticism in European Literature
The development of romanticism in Europe.
3 Lect Hrs 3 Credits
Mr. Ott, Ms. Bershtel

260 Visionary and Prophetic Modes in Literature
Visionary and prophetic experience as reflected in selected writings from such sources as the Bible, Blake, Hesse, and primitive poetry. Theoretical works about non-rational perception. Tarot readings and the I-Ching.
Prerequisite: Permission of instructor
3 Lect Hrs 3 Credits
Mr. Schreiber

263 Proust, Joyce and Mann
Vision of self, of society, of art and reality as seen by three major contributors to 20th century man's understanding of himself. Studied in comparative context.
3 Lect Hrs 3 Credits
Mr. Eskin

265 The Faust Tradition
A lecture course emphasizing critical interpretation of major texts in the Faust tradition by Marlowe, Goethe, I.A. Richards, John Hersey, and Thomas Mann. Attention given to the evolution of the legend and to other adaptations of Faustian material.
Prerequisite: English 101 or permission of instructors
3 Lect Hrs 4 Credits
Mr. Bluestone, Mr. Hoelzel

270 Gay Literature
The study of selected works of Western gay literature and discussion of themes and issues suggested by these works. Representative authors include Sappho, Plato, Woolf, Barnes, Shakespeare, Genet, Mann, Forster, and many contemporary female and male writers.
3 Lect Hrs 3 Credits
Staff

271 Literature Surrounding the Nazi Genocide of Six Million Jews
Primarily an analysis of the imaginative literature written about Jewish suffering under the Nazis. The course will begin with a brief history of the holocaust. Guest lecturers as well as at least one interview with a survivor.
3 Lect Hrs 4 Credits
Mr. Hoelzel

300 Speech Sounds and Theory
The way linguists analyze sounds, their processes and systems; phonemes and phonological theory; Trubetzkoy, structuralists, Jakobson to current generative, natural generative and universalist approaches.
Prerequisite: Hum 201, 203, 400, Anth 281, 285 or permission of instructor
3 Lect Hrs 3 Credits
Mr. Houben

301 Comparative History of Romance Languages
A comparative study of the evolution of the romance languages from Latin, with analysis of the most representative texts from each period and language. Particular emphasis will be placed upon French, Italian and Spanish. In English translation.
3 Lect Hrs 3 Credits
Mr. Giustiniani

310 Transformational Syntax
This course will train the student in using the principles and methods developed since 1957 by Chomsky and his followers.
Prerequisite: Humanities 201 or 203 or Anthropology 281 or 285.
3 Lect Hrs 3 Credits
Ms. Ambrose-Grillet

325 Madness in Literature
An examination of madness, and of the madman as his/her face appears in literature from the fifteenth century to the present; as well as a study of various philosophers, psychologists and psychoanalysts who remark upon the mind's disorientation with itself.
3 Lect Hrs 4 Credits
Staff

343 Myth and Literature
A study of myths and mythic literature using techniques from several disciplines toward the end of understanding both the nature of myth and its relationship to literature.
Prerequisite: Sophomore standing or permission of instructor
3 Lect Hrs 3 credits
Mr. Crossley

344 Tragedy
Examination of the art and meaning of tragedies.
3 Lect Hrs 3 Credits
Mr. Stock, Ms. Bershtel

345 Fantasy and Utopia
A study of types and modes of fantasy in literature, such as science fiction, utopian romance, fairy-tale, satiric voyage, and tales of the preternatural.
3 Lect Hrs 3 Credits
Mr. Crossley

347 Readings in European Fiction
The art and thought of such major European novelists as Dostoevsky, Tolstoy, Stendhal, Gide, Mann, and Kafka.
3 Lect Hrs 3 Credits
Mr. Stock, Ms. Bershtel

353 Literature of Courtly Love
A study of the courtly ethos as represented in such texts as troubadour lyrics, Chretien's *Romances*, Gottfried's *Tristan*, Dante's *Vita Nuova*, and Chaucer's *Troilus and Criseyde*.
3 Lect Hrs. 3 Credits
Ms. McAlpine

374 Women and the Feminine in Myth
An exploration of women in 'primitive' myths; theories of distortions of these myths by cultural change; the Jungian concepts of the feminine (Anima, Great Mother, etc); attempts by modern artists to restore the feminine to our myths.
3 Lect Hrs 4 Credits
Staff

383 The Image of Women in Literature
Archetypes and stereotypes of women in works by such writers as Chaucer, Shakespeare, Flaubert, Hawthorne, James, Ibsen, Chekhov, Hemingway, Faulkner, Mailer and Lessing.
3 Lect Hrs 3 Credits
Ms. Hunt, Ms. Ferguson, Ms. Dittmar, Ms. Collins

390 Ancient and Medieval Epic
A study of heroic literature in relation to its roots in mythological narrative. The continuity of the tradition is followed in readings from the ancient Near East, and Homeric Greece, medieval Ireland, Scandinavia, England, and France.
3 Lect Hrs 3 Credits
Mr. Bowen

400 Comparative Linguistics
An introduction to diachronic linguistic history of languages and historical grammar in general. Grouping of genetically related languages and comparison among them as method for the reconstruction of older patterns of each group. Emphasis will be put on the Indo-European, Germanic and especially romance language families. The course will be adapted to the needs and linguistic background of the students who enroll.
3 Lect Hrs 3 Credits
Mr. Giustiniani

405 Innocence: The Quest from Sophocles to Sam Beckett
Combining literary analysis and intellectual history, the course will examine the concepts of innocence and guilt in the Western ethical tradition. Readings from ancient myth, the Bible, Sophocles, Milton, Blake, Dostoevski, Kafka, Dylan, Beckett, et. al.
3 Lect Hrs 3 Credits
Ms. Watkins, Mr. Helms

446 Literature and the Political Imagination
An intensive exploration of the language and imaginative forms through which politics finds expression in literature. Special attention will be given to the personal visions of specific writers as they relate to such matters as style, tone, imagery, or structure. Fiction, drama and poetry will be studied, mostly modern.
3 Lect Hrs 3 Credits
Ms. Dittmar

INTERDISCIPLINARY

105 Industrial Society — Concepts and Conceptualization in the Social Sciences
An introduction to the concepts and methods of the various social sciences by means of a preliminary investigation of the phenomenon of industrial society.
(Meets one semester of the Freshman writing requirement)
6 Lect/Disc Hrs 8 Credits
Mr. Simonds

110 Great Issues in East Asian Studies
Great Issues in East Asian Studies will be a basic introduction to the new East Asia

Studies Program now being formed in CAS. The course will involve staff from East Asian Studies faculty in an interdisciplinary overview of Asian culture and problems of Asian social institutions. Specifically, the course will consider Asian history, literature, philosophy, politics, law and justice, education, child-care, social organizations, and women's role in social change. The course will neither require nor assume any previous background in Asian Studies and it will be directed to teach fundamental information to the non-specialist.
3 Lect Hrs 3 Credits
Mr. Swartz
Staff

125 Science for Humane Survival I
This course deals with the role of science in our society. It develops the perspective that scientific problems and controversies cannot be divorced from their political, economic, and social implications. After some introductory discussion of scientific methodology, validation of scientific theories, and questions concerning the objectivity of science, we will turn to some critical 'global' problems. These include problems centering on population, natural resources, food production, environmental pollution, and energy. The second semester will focus on 'local' problems. Among the topics discussed will be food and nutrition, health care, scientific management, and several aspects of biological determinism including social Darwinism, genetic screening, IQ, sex roles, sociobiology, and cloning. No scientific background is assumed, but enough science will be presented in the course so that the subject matter can be discussed in a meaningful fashion. This course has no prerequisites.
3 Lect Hrs, 1 Disc. Hr 4 Credits
Mr. Alper (Chemistry)

126 Science for Humane Survival II
This course deals with the role of science in our society. It develops the perspective that scientific problems and controversies cannot be divorced from their political, economic, and social implications. After some introductory discussion of scientific methodology, validation of scientific theories, and questions concerning the objectivity of science, we will turn to some critical 'global' problems. These include problems centering on population, natural resources, food production, environmental pollution, and energy. The second semester will focus on 'local' problems. Among the topics discussed will be food and nutrition, health care, scientific management, and several aspects of biological determinism including social Darwinism, genetic screening, IQ, sex roles, sociobiology, and cloning. No scientific background is assumed, but enough science will be presented in the course so that the subject matter can be discussed in a meaningful fashion. This course has no prerequisites.
3 Lect Hrs, 1 Disc. Hr. 4 Credits
Mr. Alper (Chemistry)

130 Learning and Schooling
This course will study some of the changes in schools exemplified in the creation of — free schools — and — open class rooms — in an attempt to raise and discuss some basic questions about schools and children. The topics covered will be freedom and control in education, schools and the transmission of dominant social values, human development and curriculum, and learning and knowledge. Emphasis in this course will be put on the goals, methods, and problems of both traditional public schools and free schools as they are exemplified in practice. Consideration will be given to other alternatives that have been attempted to traditional schooling, — like the high-school without walls, as well as to questions about community control of schools and the deschooling theory. This course will not only be taught through lecture and group discussions, but also through the use of films and, where possible, visits to free schools and open classrooms.
6 Lect/Disc Hrs 8 Credits
Staff

530 Internships in Learning and Schooling
Student internships in courses in learning and schooling.
Prerequisite: Selections by instructors.
Staff

ITALIAN

Faculty

Vito R. Giustiniani, Professor, Chairperson; Professor Carlo L. Golino; Associate Professor Gerald Volpe; Assistant Professors Antonio F. Carrara, Part-time Instructors Ernest Altobello, Janet Smarr

Requirements for Graduation

Majors are required to take a minimum of 30 credits in junior-senior level courses in Italian, including Italian 301-302 (or its equivalent). All majors must have taken Italian 311 (or its equivalent) as prerequisite for advanced literature courses.

At the end of the senior year, majors are encouraged to take a comprehensive oral and written examination in Italian, both as an academic experience summing up their Italian studies and as qualification for the University and departmental awards in Italian. The examination would cover three specific fields of Italian literature (to be chosen by the student from among: 1, Il Duecento E Il Trecento; 2, Umanesimo E Rinascimento; 3, Il Seicento E Il Settencento; 4, Romanticismo E Risorgimento; 5, Il Novecento). But the student would be expected to have some knowledge of the course and direction of Italian literature in general. Students who wish to take the examination should consult the academic advisor at the beginning of the Spring semester of the senior year.

Departmental Honors

To graduate with honors, a student must; 1. Achieve a 3.5 average in his Italian studies; 2. Submit to the Italian department a short research paper written during the second semester of his senior year under the supervision of the departmental advisor; 3. Take the comprehensive examination; 4. Be recommended by the departmental honors committee; 5. Attain a 3.0 overall grade average.

The student may elect to discuss his honors paper in an open departmental meeting instead of taking the oral part of the comprehensive examination.

The department grants 6 credits towards the total 30 major credits for successful completion of the honors program.

101 Elementary Italian I
For students who have no creditable training in Italian, intensive practice in the four language skills, with an audio-lingual approach.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Carrara and Staff

102 Elementary Italian II
The continuation of Ital 101. Intensive practice in the four language skills, with an audio-lingual approach.
Prerequisite: Italian 101 or equivalent
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

201 Intermediate Italian I
An intensive review of grammar and further study of audio-lingual skills with correlated readings in Italian culture.
Prerequisite: Italian 102 or equivalent
4 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Carrara and Staff

202 Intermediate Italian II
A continuation of Ital 201. An intensive review of grammar and further study of audio-lingual skills with correlated readings in Italian culture.
Prerequisite: Italian 201 or equivalent.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

261 The Contemporary Italian Novel
An analysis of the leading artistic and social problems of the twentieth century in such representative authors as Levi, Vittorini, Moravia, Silone, Svevo, Pavese, Pasolini, and Pratolini. Readings and discussions in English.
3 Lect Hrs 4 Credits
Staff

262 The Theatre of Italy
The evolution of the theatre from the Renaissance to the avant-garde. Readings and discussions in English.
3 Lect Hrs 4 Credits
Staff

265 Masterpieces of Italian Literature
A study of some of the representative authors from the Middle Ages to the modern time. Readings and discussions conducted in English
3 Lect Hrs 4 Credits
Staff

266 Political Thought in Italian Literature
Political ideas from medieval universalism to modern nationalism. Readings and discussion in English.
3 Lect Hrs 4 Credits
Staff

268 The Italian-American Experience — Literature and Society
A study of the contribution of Americans of Italian descent to the American civilization, and of the interaction of the two cultures through works of fiction and non-fiction. Consideration of the regions from which the original immigrants came. Readings and discussions in English.
3 Lect Hrs 4 Credits
Mr. Volpe

270 Dante's Divine Comedy
A close reading of Dante's masterpiece — *Inferno, Purgatory, Paradise* — in context of medieval civilization. Readings and discussions in English.
3 Lect Hrs 4 Credits
Mr. Volpe

274 Twentieth Century Italian Playwrights
Interdisciplinary course with stress upon the interdependence and contrasts in the art of the playwright and the art of the theatre. Theory vs. practical application. The play as conceived and written vs. the play as produced, in the context of the dramatic literature of pre- and post-existentialist Italian playwrights such as Pirandello, Betti and De Filippo. Readings and discussions in English.
3 or 4 Lect Hrs 4-5 Credits
Staff

275 Italian Culture and Civilization
A study of the major contributions of Italy to world culture and civilization from the 13th century to the present day. No knowledge of Italian required.
3 Lect Hrs 3 Credits
Mr. Golino

276 The Italian Cinema
An in-depth look into the thematic and technical development of the Italian cinema in the context of the literary and social history from neo-realism through the 1960's. Films by Rosselini, Visconti, Desica, Fellini, Antonioni, Pasolini. No knowledge of Italian required.
3 Lect Hrs 4 Credits
Staff

298 Tutorial I
Course is designed to assist students majoring, or wishing to major in Italian, in those areas where individual problems of learning or preparation need to be resolved.
Prerequisite: Italian 202 or departmental prognostic test
Hrs by Arrangement 1-2 Credits
Mr. Carrara

301 Italian Composition and Conversation
An intensive review of grammar, exercises in free composition, and advanced conversational practice.
Prerequisite: Italian 102 or equivalent and departmental permission
3 Lect Hrs 3 Credits
Mr. Carrara

302 Advanced Grammar and Stylistics
The main objective of this course is to give students a more complete knowledge of Italian morphology and syntax, and a more detailed comprehension of style and literary genres. Various methods will be employed including written translation from English to Italian and a structural analysis of Italian texts.
Prerequisite: Italian 301 or equivalent
3 Lect Hrs 3 Credits
Mr. Carrara

311 Introduction to Italian Culture through Literature
A survey of Italian literature as a reflection of Italian civilization from the Middle Ages to the Renaissance.
Prerequisite: Intermediate Italian
3 Lect Hrs 3 Credits
Staff

312 Introduction to Italian Culture through Literature
A continuation of Ital 311. A survey of Italian literature as a reflection of Italian civilization from the Renaissance to the modern period.
Prerequisite: Intermediate Italian
3 Lect Hrs 3 Credits
Staff

320 Dante and the Duecento
Dante's lyric poems examined in the light of the Italian lyrical tradition from the Sicilian school to the Dolce Stil Nuovo.
Prerequisite: Italian 311 or departmental permission
3 Lect Hrs 3 Credits
Mr. Carrara

321 Dante — Commedia I
Selections from the earlier works of Dante as an introduction to the study of the *Commedia*. This semester is devoted to the *Stil Nuovo,* the *Vita Nuova,* and a close reading of *The Inferno*

Prerequisite: Italian 311 or equivalent and departmental permission.
3 Lect Hrs 3 Credits
Mr. Volpe

322 Dante — Commedia II
A close reading of the *Purgatorio* and the *Paradisio*.

Prequisite: Italian 311 or equivalent and departmental permission
3 Lect Hrs 3 Credits
Mr. Volpe

331 Petrarca and Boccaccio
An analysis and discussion of the works of these two masters as they reflect the humanist rejection of medieval mysticism and preoccupation with man's earthly condition.
Prerequisite: Italian 311 or equivalent and departmental permission.
3 Lect Hrs 3 Credits
Mr. Carrara

341 The Age of Humanism in Italy
The humanist literature of the Italian Renaissance in the light of the intellectual and artistic preoccupations of the age.
Prerequisite: Italian 311 or equivalent and departmental permission.
3 Lect Hrs 3 Credits
Mr. Giustiniani

342 The Italian Renaissance
Machiavelli, Castiglione, Ariosto, and Tasso as exponents of the multiple aspirations and achievements of Italy's Golden Age.
Prerequisite: Italian 311 or equivalent and departmental permission.
3 Lect Hrs 3 Credits
Mr. Giustiniani

350 The Renaissance Epic
The evolution of the epic poem in Italian literature of the Renaissance ; Pulci, Boiardo, Ariosto, Tasso.
Prerequisite: Italian 311 and departmental permission
3 Lect Hrs 3 Credits
Mr. Volpe

381 Italian Literature of the 17th and 18th Centuries
Marino, Vico, Goldoni, Parini, and Alfieri as examples of the development from the extravagance of the Baroque to the rationalism of the Age of Enlightenment.
Prerequisite: Italian 311 or equivalent and departmental permission.
3 Lect Hrs 3 Credits
Mr. Giustiniani

411 Neo-Classicism and Romanticism
An analysis of this complex movement in its exaltation of liberty and imagination during the revolutionary period of the Risorgimento when Italy became a nation. Monti, Foscoli, Leopardi, and Manzoni.
Prerequisite: Italian 312 or equivalent and permission of instructor
3 Lect Hrs 3 Credits
Mr. Giustiniani

431 The Modern Novel
An analysis of the post-Romantic literary trends such as 'Verismo' 'Regionalismo', and 'Neo-Realismo'. Some of the authors to be studied are Verga, Svevo, Pirandello, and Silone.
Prerequisite: Italian 312 or equivalent and departmental permission.
3 Lect Hrs 3 Credits
Mr. Carrara

432 Contemporary Italian Novel
Such trends as 'Letteratura Di Costume' Il Romanzo Psicologico and 'I Mimetici' and the avant-gard movements considered in the writings of Levi, Vittorini, Moravia, Pasolini and others.
Prerequisite: Italian 311 or equivalent and departmental permission
3 Lect Hrs 3 Credits
Mr. Carrara

441 Modern Italian Poetry
A survey of the principal poets from Carducci to Saba, with emphasis on Hermeticism.
Prerequisite: Italian 311 or equivalent and departmental permission
3 Lect Hrs 3 Credits
Mr. Golino

445 Anglo-Italian Literary Relations
Influence of Italian literary motifs and forms on English literature, and the opposite current. Medieval Irish eschatalogical visions, Boccaccio and Chaucer, the novella and Shakespeare, Petrarchism, Marino and Baroque poetry, Romanticism.
3 Lect Hrs 3 Credits
Mr. Giustiniani

476 Cinema E Letteratura
An in-depth look into the thematic and technical development of the Italian cinema in the context of the literary, social and cultural history from Neo-Realism to the present. Films by Rossellini, Visconti, Desica, Fellini, Antonioni, Pasolini. Discussions in Italian.
3 Lect Hrs 3 Credits
Staff

478 Readings and Research I
Especially recommended to seniors. Independent study and frequent consultations with a departmental advisor on a fairly broad aspect of Italian literature of special interest to the student.
Prerequisite: Departmental permission
Hrs by Arrangement 3 Credits
Staff

479 Readings and Research II
Especially recommended to seniors. Independent study and frequent consultations with a departmental advisor on a fairly broad aspect of Italian literature of special interest to the student.
Prerequisite: Departmental permission.
Hrs by Arrangement 3 Credits
Staff

480 Letteratura Dialettale Italiana
The impact of dialect poetry on Italian literature particularly in the romantic period, in relation to the Italian 'Questione Della Lingua'.
Prerequisite: Italian 311 or equivalent and departmental permission
3 Lect Hrs 3 Credits
Mr. Giustiniani

490 Special Topics
In-depth study of a particular author, work, theme, or historical period. Course content will vary each time the course is offered. Students are invited to suggest topics of special interest to them.
Prerequisite: Italian 311 or equivalent and dept. permission
3 Lect Hrs 3 Credits
Staff

498 Honors Thesis in Italian I
Independent and original investigation of a specific aspect of Italian literature of special interest to the student, under the supervision of a departmental advisor.
Prerequisite: Departmental permission
Hrs by Arrangement 3 Credits
Staff

499 Honors Thesis in Italian II
Independent and original investigation of a specific aspect of Italian literature of special interest to the student, under the supervision of a departmental advisor.
Prerequisite: Departmental permission.
Hrs by Arrangement 3 Credits
Staff

500 History of the Italian Language
Survey of the evolution of Italian from spoken Latin to the modern language with analysis of

texts from each major period.
Prerequisite: Italian 302 and 312 or equivalent
3 Lect Hrs 3 Credits
Mr. Carrara

586 Curriculum and Methods Student Teaching — Italian
The issues, principles and methods of secondary school Italian language teaching. Supervision and critique of practice teaching.
Prerequisite: 6 hours of education courses and admission to the Teacher Certification Program.
3 Lect Hrs, 20 Lab Hrs
(Practice Teaching) 9 Credits
Staff

JAPANESE

101 Elementary Japanese I
For students with no previous language training in Japanese. Introduction to pronunciation, grammar, conversation, and the elements of the writing system (Hiragana and Kanji).
3 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Kenney

102 Elementary Japanese II
Continuation of Japanese 101. Grammar and conversation using the basic patterns.
Prerequisite: Japanese 101.
3 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Kenney

201 Intermediate Japanese I
Continuation of Japanese 102. Reading, writing and conversation using the basic patterns.
Prerequisite: Japanese 102 or equivalent.
3 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Kenney

202 Intermediate Japanese II
Continuation of Japanese 201. Further study in reading, writing, and conversation.
Prerequisite: Japanese 201.
3 Lect Hrs, 2 Lab Hrs 4 Credits
Mr. Kenney

250 Modern Japanese Literature
Selected readings in modern Japanese fiction with emphasis on the major writers. Tanizaki, Kawabata, Mishima, and others. No knowledge of Japanese necessary. All works in English.
3 Lect Hrs 4 Credits
Mr. Kenney

252 Traditional Japanese Literature
Selected readings in classical literature including fiction, Waka poetry, and Haiku. No knowledge of Japanese necessary. All works in English.
3 Lect Hrs 4 Credits
Mr. Kenney

478 Independent Study
For those wishing to continue their study of Japanese beyond the 202 level. Individual attention.
Prerequisite: Permission of instructor.
Hrs by Arrangement .3 Credits
Mr. Kenney

479 Independent Study
For those wishing to continue their study of Japanese beyond the 202 level. Individual attention.
Prerequisite: Permission of instructor
Hrs by Arrangement
Mr. Kenney

LATIN

(See Classics for Major Requirements)

101 Fundamentals of Latin I
With Latin 102 (fall), designed to complete a standard basic textbook.
3 Lect Hrs 4 Credits
Staff

102 Fundamentals of Latin II
Continuation of Latin 101 (Spring)
3 Lect Hrs 4 Credits
Staff

113 Intensive Latin
Accelerated elementary Latin for students with previous language background; fundamentals in one semester.
Prerequisite: Previous language background.
3 Lect Hrs 4 Credits
Staff

211 Intermediate Latin
Review of basic principles and introductory reading of a prose author (Cicero, Livy). Students with 3 years of high school Latin may qualify. (Fall)
3 Lect Hrs 4 Credits
Staff

222 Ovid-Metamorphoses
Continuation of Latin 211; credit may be applied to major. (Spring)
3 Lect Hrs 4 Credits
Staff

301 Cicero
Reading in Cicero's orations, philosophical, or rhetorical works; background and scholarship.
3 Lect Hrs 3 Credits
Staff

302 Caesar
Reading in the works of Caesar; background and scholarship.
3 Lect Hrs 3 Credits
Staff

303 Roman Comedy
Reading in the plays of Plautus and Terence; background and scholarship.
3 Lect Hrs 3 Credits
Staff

304 Catullus
Reading in the poems of Catullus; background and scholarship.
3 Lect Hrs 3 Credits
Staff

305 Roman Elegy
Reading in Tibullus and Propertius and other Latin elegiac poets; background and scholarship.
3 Lect Hrs 3 Credits
Staff

306 Tacitus
Reading in the historical works of Tacitus; background and scholarship.
3 Lect Hrs 3 Credits
Staff

307 Sallust
Reading in the historical works of Sallust; background and scholarship.
3 Lect Hrs 3 Credits
Staff

308 Livy
Reading in the historical works of Livy; background and scholarship.
3 Lect Hrs 3 Credits
Staff

309 Lucretius
Reading '*On the Nature of Things*'; background and scholarship.

3 Lect Hrs 3 Credits
Staff

310 Virgil
Reading in the works of Virgil with primary emphasis on the *Aeneid*; background and scholarship. Required for Latin majors, and for combined Greek-Latin majors
3 Lect Hrs 3 Credits
Staff

311 Petronius
Reading in the *Satyricon*; background and scholarship
3 Lect Hrs 3 Credits
Staff

312 Horace
Reading in the works of Horace; background and scholarship.
3 Lect Hrs 3 Credits
Staff

313 Juvenal
Reading in the satires of Juvenal; background and scholarship.
3 Lect Hrs 3 Credits
Staff

314 Prose Composition
Advanced exercises in Latin grammar, syntax, and vocabulary; composition in Latin based on ancient models. Suggested for departmental majors.
3 Lect Hrs 3 Credits
Staff

478 Independent Study
Directed projects in Latin language and literature.
Hrs by Arrangement 1-3 Credits
Staff

479 Independent Study
Directed projects in Latin language and literature.
Hrs by Arrangement 1-3 Credits
Staff

490 Honors
Special projects in Latin language and literature for honors candidates.
Hrs by Arrangement 1-3 Credits
Staff

491 Honors
Special projects in Latin language and literature for honors candidates
Hrs by Arrangement 1-3 Credits
Staff

LATIN-AMERICAN STUDIES

301 Spanish Speaking People in Urban U.S.A.
An examination of the Puerto Rican, Mexican, Cuban and Dominican migrations to the North American mainland. A preliminary overview of the historical and cultural backgrounds of these migrations will be followed by a more focused analysis of organizational, educational, medical and housing patterns within the Spanish speaking population of Boston.
3 Lect Hrs 3 Credits
Mr. Cotto

320 Development and Equity in Latin America
Prerequisite: Seniors only; Latin American concentrators only.
3 Lect Hrs 3 Credits
Staff

480 Colloquium in Latin American Studies
A seminar consisting of a series of lectures given by the concentration's faculty on broad topics including all disciplines, such as 'responses to dependency in Latin America.' Students, supervised by a faculty member in their field, write a paper on a related topic of interest. All concentrators must take this course.
3 Lect Hrs 3 Credits
Staff

LAW AND JUSTICE

101 Foundations Course in Law and Justice
A team-taught non-disciplinary investigation into some general problems and dimensions of law and justice. Subject matter includes: encountering the law; the functions of law; the criminal justice system; personal responsibility, societal responsibility and the law; and beyond the reach of the law. This course explores the gap between law and justice. Examination of some specific institutions and practices (for example, courts, prisons, civil disobedience) in light of various conceptions of the origins and aims of law on the one hand and of justice on the other. Readings from English literature, history, philosophy, political science and sociology. Emphasis is placed on writing and basic academic skills. Upperclass interns serve as tutors in this course and they are available to work individually with Freshmen students. Stress is on work in small groups. Each semester on a rotating basis, 4 faculty members drawn from the humanities and social sciences team-teach this course.
Prerequisite: Freshman standing.
3 Lect Hrs, 3 Disc Hrs 8 Credits
Staff

102 Seminar in Law and Justice
This course will consider issues of customs, rules and justice in jobs, schools, and families and relationships. Emphasis will be on writing skills through the use of interdisciplinary readings and projects. This course satisfies one semester of the Freshman writing requirement and will include regular and explicit instruction on writing. The course is offered during the Spring term. Each offering, on a rotating basis, 3 faculty members drawn from the humanities and social sciences team-teach the course.
Prerequisite: LawJus 101 (foundation course) or 1 semester of Engl 101.
1 Lect Hr., 2 Disc Hrs 3 Credits
1 Lect Hr, 2 Disc Hrs 4 Credits
Staff

103 Problems in Law and Justice
Short courses in law and justice on specialized problems of contemporary interest.
Hrs by Arrangement 1-2 Credits
Staff

104 Introduction to Law and Justice
Introduction to Law and Justice explores both the mutual support and the frequent gaps between law and justice as revealed in a selection of literary, historical, anthropological, political, philosophical and sociological materials. It ranges inquiringly from primary definitions (Plato, the Constitution of the United States) to contemporary situations (Wiseman's 'Law And Order', Middlesex Court, Kafka's trial) that pose the recurring tensions between Western cultures need for order and its haunting yen for justice that transcends law. The course, which parallels the foundation course in law and justice, uses lectures, discussions, field trips, films and tapes, and experts outside the university community.
3 Lect Hrs 4 Credits
Staff

108 Program Planning in Law and Justice
The program planning course in law and justice is a requirement for all concentrators. It is a one-credit mini-course offered during 5 weeks of the semester where students who apply for the concentration work out with a faculty

member their own program and goals in law and justice, especially as it connects with the work they are doing in their major.
Prerequisite: Law and Justice Concentrations only.
Hrs by Arrangement 1 Credit
Staff

210 Prisons and Punishment
This course will be an in-depth study of the prison system in the context of current psychological and sociological studies, as well as the context of theories of punishment. Film and media representations of prisons will be examined critically, and creative art forms concerned with or emanating from punitive situations and institutions will be presented. Topics will include forms of punishment, institutionalized punishment, the human need to punish, aims and justifications of punishment.
Prerequisite: Sophomore standing or either LawJus 101 or 104.
3 Lect Hrs 3 Credits
Mr. Garrett (Sociology),
Mr. Swartz (Philosophy)

220 Social Justice
An examination of some basic problems of social justice and their relation to more abstract philosophical ideas of justice. This course will not only focus on the ways that these ideas have been implemented, but it will also be concerned with ways in which principles of justice have been appealed to in criticizing social practices. Literary expression of these critical attitudes towards practices involving social injustice will be a primary emphasis in the course, and part of this focus will be aimed on the rhetorical features of these literary sources which are aimed at the emotions and actions rather than just intellectual enlightenment.
Prerequisite: Sophomore standing or either LawJus 101 or 104.
3 Lect Hrs 3 Credits
Mr. Blum (Philosophy) Ms. Dittmar (English)

230 Law and Social Change
This course will ask certain questions about the relationship between the law and social relationships in various societies. The class will explore the question of why certain forms of social change are handled by legal means and others are resolved outside the law. We will take an anthropological/political science approach to different forms of conflict resolution. The second portion of the course will focus on the way in which the law has been used to foster or prevent social change, and how it can be used as an instrument to consolidate changes already completed in the socioeconomic realm. We will conclude with a study of some of the ways in which the law has blazed new paths in, or failed to keep up with, social changes in America and the world. This course will be taught in combination lecture and small discussion groups meeting separately with each of the instructors.
Prerequisite: Sophomore standing or either LawJus 101 or 104.
3 Lect Hrs 3 Credits
Mr. Hunt (History),
Mr. Spence (Political Science)

240 Courts and Society
This team-taught course will investigate a number of different aspects of the American legal and court systems. It will deal with the structure of, and relation between, the state and federal courts; the philosophy and function of courts in society; the peculiar American institutions of judicial review and its role in a democratic society; and the role and power of judges in the American system of justice. The course will concern itself with both a description and evaluation of courts in American society. It will look at the ideal (what courts and judges ought to be doing) and the actual administration of justice in the courts. It will be concerned with the adversary system, the notion of due process, the judge's role as bureaucrat and administrator, the use and abuse of judicial discretion especially in sentencing, and the responsibility and accountability of judges to society. Consideration also will be given to alternatives to the American court system. The course will examine, for example, revolutionary courts in Cuba and peasant courts in a Mexican village. Readings will be from anthropological, legal, philosophical, political science and sociological material. The class will utilize lectures, debates, panels and guest speakers (e.g., judges) who are involved in the American court system.
Prerequisite: LawJus 101 or 104 or Sophomore standing.
3 Lect Hrs 2 Disc Hrs 3 Credits
Mr. Foster (Law and Justice),
Mr. Matz (Legal Ed. Service)

250 Ownership, Property and Legality
The relationship between human beings and the things they possess investigated from the point of view of human rights to property, the economic systems that have been developed to institutionalize these rights, and the legal mechanisms used to protect them. Not only will this course deal with these concepts, principles and economic systems, it will also focus on the reactions of people to these through their forms of natural expression. Lectures, readings and discussions will relate to the impact of differing property systems upon social and political values in societies which undergo industrial modernization. Other issues to be explored include the social cost elements of property, the coercive nature of law, 'new property' (that created by government action), and its impact on the present day economy.
Prerequisite: LawJus 101 or 104 or Sophomore standing.
3 Lect Hrs 3 Credits
Ms. Kingston-Mann (History), Ms. Updike (Economics)

260 Authority, Liberty and Law
This course will deal with the interplay between authority, the rule of law and the freedom of the individual. A conceptual and historical examination of the nature of authority in the context of laws and conventions affecting property rights, intellectual and moral freedom, the organization of state power, etc. Readings will be drawn from a variety of sources including Max Weber, Hannah Arendt, John Stuart Mill, George Eliot, Stanley Milgram and Eugene Zamiatin.
Prerequisite: Sophomore standing or either LawJus 101 or 104.
3 Lect Hrs 3 Credits
Mr. Hart (English), Mr. Simonds (Political Science)

270 Obedience and Resistance
A study of the psychological, social and philosophical dimensions of obedience and resistance to legitimate authority. The course takes a close and critical look at the three situational contexts embodying legitimate commands: experimentor/subject; Congressional Committee/witness; and superior officer/subordinate. The experimentor/subject relationship will be illustrated by Milgram's celebrated study of obedience; Milgram's method of research will be examined on both methodological and moral grounds. The Congressional Committee/witness relationship will be looked at in the form of typical responses of witnesses to the House Unamerican Activities Committee, with particular attention given to the committee's Hollywood investigation. The actions of My Lai, Vietnam, will provide the context for a careful examination of the superior officer/subordinate relationship.

Prerequisite: LawJus 101 or 104 Sophomore standing.
3 Lect Hrs 2 Disc Hrs 3 Credits
Mr. Cohen (Philosophy), Mr. Mixon (Psychology)

280 Moral and Legal Reasoning
This course will focus on a number of difficult current moral and legal problems — such as abortion, reverse discrimination, conscientious objection, and euthanasia — and compare, contrast, and separate the methods and substantive issues involved in attempting to resolve these within the context of social morality on the one hand and the law on the other. Basic issues about the relation between morality and the law — whether there are moral constraints on law making, law enforcement, and obeying the law — will be discussed critically
Prerequisite: LawJus 101 or 104 or Sophomore standing.
3 Lect Hrs 2 Disc Hrs 3 Credits
Mr. Honoroff (Legal Ed. Service), Mr. Swartz (Philosophy)

470 Special Topics
Special Topics courses are offered by the lawyer-in-residence of the Law and Justice Program on a variety of legal issues, and by members of the faculty who wish to offer a departmentally-based course under the Law and Justice heading. Subjects, credits, faculty, requirements — all will vary depending on what is being offered by whom.
Hrs by Arrangement Credits Vary
Staff

478 Independent Study
By arrangement between the student and the faculty supervisor.
Prerequisite: Permission of the Law and Justice Office before registration.
Hrs by Arrangement Credits Vary
Staff

498 Senior Year Directed Study Seminar
Each concentrator in Law and Justice will be required to take this three-credit seminar dealing with a specific topic in Law and Justice. Participation in the seminar will involve the writing of a major paper on that topic. The formal seminar will consist of the reading and discussion of a few major works dealing with a particular theme in order to review, refresh, and synthesize the student's academic experience in Law and Justice, especially as the work relates to his individual major. The senior paper will be a major essay dealing with that topic.
Prerequisite: Senior Law and Justice concentrators only.
3 Lect Hrs 3 Credits
Staff

501 Intern in Foundation Course in Law and Justice
Supervised in-service training as tutor and discussion leader as Junior staff member of the IFC course in Law and Justice. The tutor will attend teaching-team meetings, attend lectures, help lead small discussion groups, and counsel and assist individual freshmen in basic problems of reading and writing.
3 Lect Hrs, 3 Disc Hrs 8 Credits
Each semester on a rotating basis, 4 faculty members drawn from the humanities, and social sciences team-teach this course.

502 Intern Seminar in Law and Justice
Upper division students supervised in-service training as tutors and discussion leaders in Law and Justice. The interns counsel and assist individual freshmen in basic problems of reading and writing, attend teaching-team meetings, attend lectures and help lead discussion groups.
Prerequisite: Interested students must apply through the Law and Justice Office (I-5/046) during the advance registration period. Interns are chosen by the respective teaching-team through interviews for competence in oral delivery and written exposition and their promise as interns.
1 Lect Hr, 2 Disc Hrs 4 Credits
Staff

MATHEMATICS

Faculty

Bernice Auslander, Associate Professor, Chairperson; Professors Alfonso Azpeita, Ethan Bolker, Matthew Gaffney, Herbert Kamowitz, Geza Schay, Robert Seeley,Taffee Tanimoto; Associate Professors James Byrnes, Ernest Elyash, Guy Hogan, Joan Lukas, John Lutts, Some Nath Mukherjee, Elizabeth O'Neil, Stephen Parrott; Assistant Professors Daniel Comenetz, So-Fei Fang, Colin Godfrey, Victor Miller, James Perchick, Michael Tomlinson, Dennis Wortman; Lecturer Joseph Russell and other part-time lecturers.

Requirements for Graduation

All Mathematics Majors must meet the following requirements:

Common Courses:
All Mathematics majors must take Math 140, Math 141, Physics 113 (lab optional), Math 150, Math 240, Math 260 and Math 450.

Concentration Courses:
In order to complete the major, however, in addition to the common course requirements, a mathematics major must complete either a pure mathematics concentration or an applied mathematics concentration.
To complete the:
Pure Mathematics concentration: in addition to the common courses a student must take:

(i) Either Math 310 or Math 320 and
(ii) Math 360 and
(iii) Four other mathematics courses above Math 260

Applied Mathematics concentration: in addition to the common courses a student must take:

(i) Math 137
(ii) At least six (6) courses above Math 260 specified as follows:

(a) at least five (5) of the courses must be taken from Math 267, 310, 311, 320, 330, 401, 425, 445, 446, and 455
(b) at least one (1) of the five in (ii) (a) must be from Math 401, 425, and 446.

Any student who intends in the coming semester to take a mathematics course that is either Mathematics 140 (Calculus I) or below it and that is his/her first mathematics course at UM/B, must take the *current* departmental diagnostic/placement exam. Registration for such courses will not be accepted unless certified as appropriate by the results of this test. The results of any *former* diagnostic/placement test(s) are now null and void.

Elementary Math Workshop
Academic Support Services offers a self-paced workshop that is designed to prepare students for Math 110 and to provide instruction in elementary mathematics. Topics include such algebraic concepts as: combining like terms, exponents, positive and negative numbers, decimals, fractions, graphing, introduction to word problems, solving linear equations.

While this workshop is offered throughout the semester because it is self-paced many students will not need to attend for the whole semester.

2 sessions per week No Credit
Academic Support Services Staff

100 Mathematics as an Aspect of Culture
An historical-cultural survey of the main areas of mathematics. Emphasizes the interplay of these areas with man's philosophic, artistic, commercial, social and scientific pursuits.
Prerequisite: Permission of department prior to registration, limited to those who found high school mathematics a severe stumbling block and whose major does not directly call for further mathematical skills
3 Lect Hrs 4 Credits
Staff

105 Introduction to Computer Concepts
Discussion of computer applications, components and terminology; historical and recent developments; computer 'arithmetic'; data processing equipment and its uses; computer languages.
Prerequisite: Math placement test.
Note: No student will receive graduation credits for Math 105 if it is taken after successful completion of Math 137.
Not open to mathematics majors.

110 Basic Algebra
For students with weak math background who want to develop skills for further math and science courses. Covers a review of basic high school math and some of the material in Math 130. Generally limited to students with less than 3 years of high school math preparation.
Prerequisite: Math placement test.
Note: No student will receive graduation credits for Math 110 if it is taken after successful completion of Math 124 or 130 or higher math courses.
3 Lect Hrs 4 Credits
Staff

120 Liberal Arts Mathematics
Designed for students who do not expect to take many mathematics and/or science courses. Aims at providing an appreciation of the nature of mathematics. Topics serving that end are selected from number theory, elementary topology, combinatorics, etc. This course is not a prerequisite for other courses and it has no other college mathematics courses as a prerequisite.
Prerequisite: Math placement test.
Not open to mathematics majors.
3 Lect Hrs 4 Credits
Staff

125 Elementary Probability Theory
For non-science and non-mathematics majors only. Topics include: elementary set theory, combinations, permutations and other counting formulas, finite probability theory, random variables and their distributions. Serves as preparation for Math 126 or statistics courses in other departments.
Prerequisite: Math placement test.
Note: No student will receive graduation credits for Math 125 if it is taken after successful completion of Math 645.
Not open to Mathematics majors.
3 Lect Hrs 4 Credits
Staff

126 Elementary Statistics
Statistics without calculus. Begins with brief review of elementary probability. Finite distributions and probability density functions. Computation of and elementary analysis of variance and regression. Expectation, confidence intervals and a few distribution-free nonparametric methods of data analysis.
Prerequisite: Math 125 or equivalent.
Note: No student will receive graduation credits for Math 126 if it is taken after successful completion of Math 136 or 645
3 Lect Hrs 4 Credits
Staff

130 College Algebra and Trigonometry
Provides a review of college algebra, trigonometry and enough analytic geometry to begin the calculus sequence. For students with adequate basic math skills who need to review and extend their knowledge of algebra, etc., before taking more advanced courses in math or science. Ordinarily science and math majors should begin with Math 140 and/or Math 150 regardless of having successfully completed another math course.
Prerequisite: Math placement exam.
Note: No student will receive graduation credits for Math 130 if it is taken after successful completion of Math 140 or a higher math course. Students who take Math 130 may not also receive credit for Math 124.
3 Lect Hrs 4 Credits
Staff

135 Survey of Calculus
Calculus developed intuitively and applied to problems in biology, economics, psychology and geometry. A course for non-physical science and non-mathematics majors. Suitable for some premedical programs (along with Math 136 or 141).
Prerequisite: Math placement exam.
Note: No student will receive graduation credits for Math 135 if it is taken after successful completion of Math 140 or a higher math course.
3 Lect Hrs 4 Credits
Staff

136 Applied Calculus with Statistics
Calculus for functions of two variables — partial derivatives, maximization, integration, applications of calculus to inferential statistics: statistical sampling, statistical measurements, essential probability theory, significance of statistical measurements, regression. Examples from the biological and social sciences. For non-mathematics majors only. Math 126 and Math 136 may not both be taken for credit.
Prerequisite: Math 135 or equivalent.
Note: No student will receive graduation credits for Math 136 if it is taken after successful completion of Math 141 or a higher math course.
3 Lect Hrs 4 Credits
Staff

137 Introduction to Computer Programming
A detailed introduction to algorithms and problem-solving techniques. Description of one or more computer languages. Gives experience in programming and debugging via several problems.
Prerequisite: Math placement exam.
3 Lect Hrs 4 Credits
Staff

140 Calculus I
The first in the calculus sequence of courses for science and mathematics majors. Starts with the basic concepts of functions and limits. Topics covered include: derivatives and their applications, definite and indefinite integrals with applications to geometrical and physical problems, discussion of algebraic and transcendental functions. A student who has received credit for Math 135 may not take Math 140 for credit without the explicit permission of the department.
Prerequisite: Math placement exam or Math 130.
4 Lect Hrs 4 Credits
Staff

141 Calculus II
Continuation of Math 140. Topics include: Integration, applications of the integral, sequences and series.
Prerequisite: Math 140 or equivalent.
4 Lect Hrs 4 Credits
Staff

150 Vector Geometry and Matrices
Plane and solid analytic geometry from the vector-space point of view. Elementary systems of linear equations. Elementary operations for 2×2 and 3×3 matrices over R determinants.
Prerequisite: Math 140 or equivalent.
3 Lect Hrs 4 Credits
Staff

240 Calculus III
Continuation of Math 141. Primarily calculus of functions of two or more variables. Includes — partial differentiation, volume integrals and applications.
Prerequisite: Math 141 and either Math 150 or Physics 114 (lab optional). Neither of the latter two may be a corequisite.
4 Lect Hrs 4 Credits
Staff

260 Linear Algebra I
Elementary theory of abstract vector spaces. Topics include: linear independence, bases, dimension, linear maps and matrices, determinants, similarity, eigenvalues and eigenvectors.
Prerequisite: Math 141 and Math 150. Math 240 strongly recommended.
3 Lect Hrs 4 Credits
Staff

261 Linear Algebra II
Topics include — the problem of similarity, Jordan canonical form, Euclidean and Hermitian spaces, orthogonality, normal operators, spectral theorem; multilinear algebra, quadratic forms, etc.
Prerequisite: Math 260.
3 Lect Hrs 3 Credits
Staff

267 Assembly Language Programming
The structure and internal language of computers, study of assembly language.
Prerequisite: Math 138 or equivalent.
3 Lect Hrs 4 Credits
Staff

310 Applied Ordinary Differential Equations
Comprehensive study of ordinary differential equations. Series solutions to differential equations, Bessel functions, characteristic functions, Fourier series.
Prerequisite: Math 141 and either Math 150 or Physics 114 (lab optional).
3 Lect Hrs 3 Credits
Staff

311 Applied Partial Differential Equations
Study of heat flow and other physical problems and the partial differential equation problems that arise from them, using the mathematical techniques of separation of variables, fundamental solutions, superposition and characteristics. Use of Dirac delta function; asymptotics. Classification of partial differential equations.
Prerequisite: Math 240, 310. Physics 113 (lab optional) is at least a corequisite.
3 Lect Hrs 3 Credits
Staff

320 Advanced Calculus I
Partial derivatives, differentials, differentiation of composite functions, inverses of transformations, Jacobians, implicit function theorems, functional dependence. Gradient, divergence, curl. Multiple integration, change of variable, improper double integrals. Line integrals, Green's theorem, simply-connected and multiply-connected domains. Surface integrals, Stokes' and Gauss' theorems.
Prerequisite: Math 240.
3 Lect Hrs 3 Credits
Staff

321 Advanced Calculus II
Convergence and divergence of infinite series. Taylor series. Uniform convergence of series. Fourier series and orthogonal functions. Introduction to integral transforms. Introduction to complex analysis.
Prerequisite: Math 320.
3 Lect Hrs 3 Credits
Staff

330 Applied Discrete Mathematics
Study of the basic discrete mathematical structures of graphs, networks, trees; use of recurrence relations. Introductions to linear programming.
Prerequisite: Math 141 and 150; with Math 137 and 267 recommended.
3 Lect Hrs 3 Credits
Staff

360 Abstract Algebra I
Review of set theory. Overview of algebraic structure. Elementary theory of groups, rings and modules.
Prerequisite: Math 260 or 330 or equivalent.
3 Lect Hrs 3 Credits
Staff

361 Abstract Algebra II
Polynomial rings. Field theory, Galois theory. Further topics in group and ring theory.
Prerequisite: Math 360.
3 Lect Hrs 3 Credits
Staff

370 History of Mathematics I
Traces the development of mathematics from ancient times up to and including the 17th century developments in the calculus. Emphasis will be on the development of mathematical ideas and methods of problem solving. Only one semester of Math 370-371 may count toward the major, but both may be taken for graduation credit.
Prerequisite: At least Junior standing in Mathematics.
3 Lect Hrs 3 Credits
Staff
(Offered every other year)
(Offered in Fall 1979)

371 History of Mathematics II
Continues the history of mathematics from 17th century developments in calculus to 20th century mathematics with the same emphasis as in Math 370. Only one semester of Math 370-371 may count towards the major but both may be taken for graduation credit.
Prerequisite: At least Junior standing in mathematics; Math 370 recommended.
3 Lect Hrs 3 Credits
Staff
(Offered every other year)
(Offered in Spring 1980)

401 Algorithms and Data Structures
Analysis of algorithms and techniques for construction of computer programs.
Prerequisite: Math 267 or equivalent.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

425 Numerical Analysis
Approximations of roots. Finite differences. Interpolation. Numerical solutions of differential and algebraic equations. Students will have access to computer terminals.
Prerequisite: Math 250 and either Math 310 or 320.

Departmental Courses and Requirements

3 Lect Hrs 3 Credits
Staff

450 An Introduction to Real Analysis
A rigorous treatment of the calculus of functions of one real variable. Emphasis is on proofs. Includes discussion of topology of real line, limits, continuity, differentiation, integration and series.
Prerequisite: Math 310 or Math 320.
3 Lect Hrs 3 Credits
Staff

455 An Introduction to Complex Analysis
Complex numbers. Complex functions. Power series. Trigonometric functions. Moebius transformations. Differentiation and integration of analytical functions. Cauchy's theorem. Residues, singularities. Meromorphic functions.
Prerequisite: Math 310 or Math 320.
3 Lect Hrs 3 Credits
Staff

458 Theory of Numbers
Prime numbers. Congruences and residues. Approximation of real numbers by rationals. Diophantine equations.
Prerequisite: Math 260 or 330 or equivalent.
3 Lect Hrs 3 Credits
Staff

460 Topics in Geometry
Topics taken from classical Euclidean geometry and non-Euclidean geometries. Projective geometry, lattices, finite geometries.
Prerequisite: Math 260 or equivalent.
3 Lect Hrs 3 Credits
Staff

475 Topology
Topological spaces. Convergence and continuity. Compactness and connectedness properties. Introduction to homotopy theory and combinatorial topology.
Prerequisite: Math 450.
3 Lect Hrs 3 Credits
Staff

478 Reading in Mathematics
Advanced level study of various topics according to individual interests. Open only to those students who have proven capabilities in mathematics.
Prerequisite: Permission of department prior to registration.
Hrs by Arrangement 3 Credits
Staff

586 Curriculum, Methods and Practice Teaching of Mathematics in Secondary Schools
The issues, principles, curriculum and methods involved in teaching mathematics in secondary schools. Includes work in a mathematical materials laboratory.
Prerequisite: 6 hours education courses and admission to the Teacher Certification Program.
3 Lect Hrs, 20 Hrs
Practice Teaching 9 Credits
Staff
Given usually in the Spring semester each year

640 Theory of Computations
Abstract models of computational processes, mathematical formulations of the notion of effective procedure. Unsolvable problems.
Prerequisite: Math 260 or 330 or equivalent.
3 Lect Hrs 3 Credits
Staff

645 Probability and Statistics I
Discrete probability theory. Some limit theorems. Random variables and generating functions.
Prerequisite: Math 310 or Math 320 or equivalent.
3 Lect Hrs 3 Credits
Staff

646 Probability and Statistics II
Renewal theory. Application of renewal theory. Stochastic processes. Elementary theory of continuous random variables and some statistical theory.
Prerequisite: Math 645.
3 Lect Hrs 3 Credits
Staff

665 Differential Geometry
An introduction to classical differential geometry with corresponding modern algebraic approaches, leading to an introduction to Riemannian geometry. Techniques involve tensor analysis and multilinear algebra.
Prerequisite: Math 320 and Math 260.
3 Lect Hrs 3 Credits
Staff

670 Mathematical Logic I
Statement calculus, predicate calculus, axiomatic theories, truth and validity models.
Prerequisite: Math 260 or 330 or equivalent.
3 Lect Hrs 3 Credits
Staff

671 Mathematical Logic II
Properties of formal theories: consistency, completeness, decidability. Goedel's incompleteness theorem for first order arithmetic.
Prerequisite: Math 670.
3 Lect Hrs 3 Credits
Staff

MUSIC

Faculty

Laurence D. Berman, Associate Professor, Chairperson; Associate Professors John Huggler, Robert Prins, Nicholas Tawa; Assistant Professors J. Jefferson Cleveland, David N. Patterson; Instructor Rosemary Leavenworth; Lecturers Larry Hill, Martin Pearlman

Requirements for Graduation

Music majors must take a minimum of 34 credits in Music which must include Music 121-122, 221-222, and 202. All Music majors will also be expected to take at least two courses in Music History and Literature.

All Music majors must acquire at least an elementary proficiency at the piano. A minimum of three years membership in a University performing group is also required. For more detailed information, the prospective major should apply to the secretary of the Music department for the syllabus of basic music major requirements.

Each student majoring in Music will be assisted by a departmental advisor to plan a sequence of courses that will suit his/her own needs and satisfy the requirements of the Music department.

001 Chorus
3 Lect Hrs 1 Credit
Staff

111 Introduction to Music
Basic music materials, principles of design, and the cultural significance of representative works in historical sequence. Designed primarily for non-music majors.
3 Lect Hrs 4 Credits
Mr. Berman, Mr. Patterson

112 Introduction to Music
A continuation of Music 111. Basic materials, principles of design and the cultural significance of representative works in historical sequence. Designed primarily for non-music majors.

3 Lect Hrs 4 Credits
Mr. Huggler, Mr. Patterson

121 First Year Theory
Harmony, melody and music theory.
Prerequisite: Permission of instructor.
3 Lect Hrs 4 Credits
Mr. Berman, Ms. Leavenworth, Mr. Patterson

122 First Year Theory
A continuation of Music 121. Harmony, melody, and music theory.
Prequisite: Permission of instructor.
3 Lect Hrs 4 Credits
Mr. Berman, Ms. Leavenworth, Mr. Patterson

123 Ear Training and Sight Singing
A course combining melodic, harmonic dictation and sight singing of melodies. Encompassing simple material to medium difficulty, common and compound time, primary triads.
2 Lect Hrs 2 Credits
Mr. Prins

124 Ear Training and Sight Singing
Encompassing medium difficulty to difficult melodies, combined rhythms, secondary triads and seventh chords. This is a companion course to Theory 121-122 and Elements of Music 131-132.
2 Lect Hrs 2 Credits
Mr. Prins

131 Elements of Music
The function of scales, intervals, triads, chords in root position and inversions. Use of nonharmonic tones and modulation, correlated sight-singing, ear training, dictation, analysis and keyboard drill. Designed primarily for music majors.
2 Lect Hrs 2 Credits
Staff

132 Elements of Music
A continuation of Music 131. The function of scales, intervals, triads, chords in root position and inversions. Use of nonharmonic tones and modulation, correlated sight-singing, ear training, dictation, analysis and keyboard drill. Designed primarily for music majors.
2 Lect Hrs 2 Credits
Ms. Leavenworth

180 Movement and Dance
An introduction to the basic principles and techniques of modern dance and movement. Concepts of spatial and temporal relationships discussed at length for the purpose of translation into concrete, experimental images. Creative work is an important element of the course. Assignments run the gamut from strictly technical exercises, such as analyzing an isolated movement or gesture, to an essay in free composition, such as devising an embodiment through dance of a philosophical or emotional state of mind.
3 Sem/Lab Hrs 1 Credit
Staff

185 Applied Music
Hrs by Arrangement 1 Credit
Staff

190 Ballet Technique I
Individual and class instruction in instrument and voice. Introduction in the following instruments has been offered: flute, violin, piano, classical guitar, clarinet, oboe, saxophone. The program is open to students who are officially declared as music majors and who are either actively engaged in fulfilling music major requirements or have completed all of these. Lessons are given weekly for a twelve-week period. Students are responsible for providing their own instruments. This course can be repeated with the permission of the instructor and the approval of the department chairperson.
Hrs by Arrangement 1 Credit
Staff

191 Ballet Technique II
A continuation of Music 190.
Hrs. by Arrangement 1 Credit
Staff

202 Introduction to Musical Research I
Basic research materials and scholarly procedures.
Prerequisite: Music 111-112 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Tawa

221 Second Year Theory and Composition
Counterpoint in the 17th, 18th and 20th centuries.
Prerequisite: Music 122.
3 Lect Hrs 3 Credits
Mr. Cleveland, Mr. Prins

222 Second Year Theory and Composition
The study of harmony after 1850 — emphasis on the 20th century.
Prerequisite: Music 122.
3 Lect Hrs 3 Credits
Mr. Cleveland, Mr. Prins

223 Ear Training and Sight Singing
A continuation of Music 123-134. Material consists of melodies illustrating chromaticism, modulation, modes and freer tonality, more complex rhythm, altered chords and contrapuntal music.
2 Lect Hrs 2 Credits
Mr. Prins

224 Ear Training and Sight Singing
A continuation of Music 223. Material consists of melodies illustrating chromaticism, modulation, modes and freer tonality, more complex rhythm, altered chords and contrapuntal music.
2 Lect Hrs 2 Credits
Mr. Prins

231 Elements of Music
A continuation of Music 131-132 with some emphasis on contemporary materials.
Prerequisite: Music 131-132 or permission of instructor.
2 Lect Hrs 2 Credits
Ms. Leavenworth

232 Elements of Music
A continuation of Music 231 with some emphasis on contemporary materials.
Prerequisite: Music 131-132 or permission of instructor.
2 Lect Hrs 2 Credits
Ms. Leavenworth

234 Development of Chamber Music
Selected works from Haydn to Schonberg, centering chiefly on the medium of string quartet.
Prerequisite: Music 122 or equivalent.
3 Lect Hrs 3 Credits
Mr. Berman

235 Italian Opera
Development of opera after the Baroque. Emphasis on Mozart, Verdi, The Verissimo, and Stravinsky's *The Rake's Progress* .
Prerequisite: Music 122.
3 Lect Hrs 3 Credits
Mr. Cleveland

241 19th Century American Music
The growth and development of American

music to the year 1900, Charles Ives, in both its rural-folk and urban aspects.
3 Lect Hrs 3 Credits
Mr. Tawa

243 The Traditional Folk Music of Europe and America
The investigation of the functions, values, and musical styles of rural and urban traditional music in Europe and America.
3 Lect Hrs 3 Credits
Mr. Tawa

242 20th Century American Music
The present day ferment in American music and the gradual emergence of American composers of international stature.
3 Lect Hrs 3 Credits
Mr. Tawa

251 History and Development of Jazz in America
The development of jazz from its origin to the present.
Prerequisite: Music 122 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Huggler

252 The History of Non-Jazz Black Music
The varieties of Black music found in popular, religious, minstrel show and formal music.
3 Lect Hrs 3 Credits
Mr. Cleveland

261 19th Century Music
The development of symphonic music from Schubert to Mahler.
Prerequisite: Music 122 or equivalent.
3 Lect Hrs 3 Credits
Mr. Tawa

262 Music in the 20th Century
The various directions taken by music since 1900.
Prerequisite: Music 122.
3 Lect Hrs 3 Credits
Mr. Huggler

271 Music of the Classical Period
Music of the Classical Period with emphasis on Haydn and Mozart.
Prerequisite: Music 122 or equivalent.
3 Lect Hrs 3 Credits
Mr. Tawa

272 The Musical Works of Beethoven
Beethoven's musical works — his symphonies, quartets and piano sonatas.
Prerequisite: Music 122 or equivalent.
3 Lect Hrs 3 Credits
Mr. Tawa

281 Counterpoint
A survey of contrapuntal techniques, culminating in the 16th century. Daily practical application in exercises given Cantus Firmi. From three voice motet to 6 voice mass.
Prerequisite: Music 221-222.
3 Lect Hrs 3 Credits
Mr. Patterson

282 Form and Analysis
A study of the formal aspects of compositions from the song, Aba, through the orchestral tone poem. Each composition will be examined for harmonic application as well as its overall formal aspects.
Prerequisite: Music 221-222.
3 Lect Hrs 3 Credits
Mr. Patterson

291 Orchestration I
The ranges of instruments, practical ways of combining them and discussion of mass, texture and sound.
Prerequisite: Music 294.
3 Lect Hrs 3 Credits
Staff

293 Introductory Composition
Investigations and exercises in rhythmic studies and the relationship of melody to harmony and organic growth.
Prerequisite: Theory 121.
2 Lect Hrs 3 Credits
Mr. Huggler

294 Intermediate Composition
The beginning of composition in larger forms, phase structure, emphasis on unifying principles in both language and form.
Prerequisite: Music 293.
3 Lect Hrs 3 Credits
Mr. Huggler

295 Music of the High Baroque
Music from the time of Bach, Handel, Vivaldi, and Couperin.
Prerequisite: Music 122 or equivalent.
3 Lect Hrs 3 Credits
Mr. Berman

296 Orchestration II
The ranges of instruments, practical ways of combining them and discussion of mass, texture and sound.
Prerequisite: Music 293.
3 Lect Hrs 3 Credits
Mr. Prins

332 Music in the Renaissance
The sacred and secular compositions of the 15th and 16th centuries. From Dufay to Gabrielli.
Prerequisite: Music 293.
1 Lect Hr 3 Credits
Mr. Tawa

479 Independent Study
Open to advanced students who wish to do intensive work on a particular topic. A written outline of the project must be submitted to the prospective instructor well in advance of the beginning of the semester in which the project would be done. An extended written paper would be the normal outcome of such a project.
Hrs by Arrangement 3 Credits
Staff

480 Seminar in American Music
Advanced studies in American music, with emphasis on individual research, and intended for the student with a foundation in musical theory.
Prerequisite: Theory 222 and at least one semester of a history and literature of music course.
3 Lect Hrs 3 Credits
Mr. Tawa

481 Seminar in American Music
A continuation of Music 480. Advanced studies in American music, with emphasis on individual research, and intended for the student with a foundation in musical theory.
Prerequisite: Theory 222 and at least one semester of a history and literature of music course.
3 Lect Hrs 3 Credits
Mr. Tawa

586 Methods and Practice Teaching of Music in Secondary Schools
Instruction in methods of teaching music and supervision in practice teaching.
Prerequisite: 6 hours education courses and admission to the Teacher Certification Program.
3 Lect Hrs, 20 Lab Hrs 9 Credits
Staff

PHILOSOPHY

Robert Swartz, Professor, Chairperson; Associate Professors Martin Andic, Howard Cohen, Jane R. Martin, Robert Shope; Assistant Professors Lawrence Blum, Clyde Evans, Janet Farrell-Smith, Diane Raymond; Part-time Instructors Aris Noah, Jennifer Radden, Ilona Webb, Visiting Part-time Associate Professor Leon Hatch

Requirements for Graduation

The Philosophy Department offers three majors programs. Each is intended for students with special interests in Philosophy. The *Standard Major* is for those who wish to acquire a general and comprehensive knowledge of the basic historical and systematic themes in Philosophy and/or anticipate graduate work in the field. The major in *Ethics, Social and Political Philosophy* is intended for students who have a specific concern with questions of value as they apply to individuals, society, and the state. It should provide a broad outlook on these problems and attempted solutions to them, but should not in general be considered the best preparation for graduate work in Philosophy. It will, however, serve as a good liberal arts base for careers in Politics, The Law, or Social Service. The third program is the *Dual Major in Philosophy and Psychology*. This is an integrated course of study for students of issues common to Philosophy and Psychology and/or problems about the basis and method for Psychology. This major is different from a double major in Philosophy and Psychology: in a double major a student must fulfill the major requirements of both departments, while in the dual major fewer and another pattern of courses are required. The dual major is a good base for work in many fields of Psychology as well as for specialized graduate work either in Philosophy or Psychology.

The Philosophy department attempts to make advising more meaningful than it usually is. Each of the major programs has a special advising plan and students are urged to take advantage of it. If you intend to sign up as a major in one of these programs, please see Professor Swartz, the Chairperson of Philosophy who will discuss the advising component of your program.

Standard Philosophy Major

Standard Philosophy majors are required to take both Ph 100 (Introduction to Philosophy) and Ph 120 (Introduction to Logic). Intermediate courses are historical surveys or introductions to special areas of Philosophical inquiry which are intended to provide basic knowledge of the field. Advanced courses are given in the more specific areas of Philosophy.

Summary of requirements for the Standard Major: Ph 100, Ph 120, Ph 211, Ph 212, and five additional courses including at least two from the advanced level.

Directed Major in Philosophy and Psychology

In addition to the standard double major in Philosophy and Psychology the Philosophy and Psychology departments offer a special directed major. This major enables a student to set up an integrated program of study in the two fields according to the following guidelines:

1. A minimum of 13 courses, 6 from each Department, plus a course in directed study to be taken during the final year, are required. Included in these are the following 'core requirements':

   Philosophy —
   100 — Introduction to Philosophy
   104 — Introduction to Logic

   Psychology —
   101 — Introduction to Psychology
   211 — Research Methods and either
   280 — History of Psychology
   380 — Systems of Psychology

2. In each case of such a major, the student is required to plan out his or her program with a team of two advisors, one from each Department. This needn't be done prior to taking any courses in each Department, but should come close to the beginning of the student's stay at UMB. It should be understood that some courses a student may have taken in each Department prior to setting up such a major may not be included in courses that count towards this major, if both advisors feel they cannot be integrated into his or her course of study.
3. Such integrated courses of study needn't require departmental approval in individual cases as long as both advisors concur in their judgment of the viability of the major program and the core requirements are satisfied.
4. Waiving the core requirements, though, requires approval of both Departments.

Ethics, Social and Political Philosophy Major

The Ethics, Social, and Political Philosophy Major is a regular Philosophy major program emphasizing philosophical questions regarding morality, society, and politics.

Requirements for the ethics, social, and political philosophy major are Phil 100 (Introduction to Philosophy) and 8 additional courses including at least 5 from the following three (3) fields:

1. History of ethics, social, and political philosophy. This field includes Phil 216 (History of Ethics), Phil 218 (Major Social and Political Thinkers), Phil 211 (Ancient Philosophy), Phil 351 (Plato), and Phil 365 (Kant's Moral Philosophy and its Critics), and Phil 289 (Marxist Philosophy).
2. Theory of ethics, social, and political philosophy. This field includes Phil 280 (Social and Political Philosophy), Phil 290 (Philosophy of Law), Phil 220 (Ethical Theory).
3. Problems in ethics, social, and political philosophy. This field includes Phil 108 (Moral and Social Issues), Phil 219 (Moral Relatively), Phil 295 (Egoism, Selflessness, and Love), Phil 287 (Equality), and Phil 288 (Capitalism and Socialism).

The program allows students to apply Philosophy to real life issues and to see connections between Philosophy and other fields. Students who may wish to count related courses in other fields toward this major must discuss their proposal with an advisor and then petition the Philosophy department.

In signing up for this major with the Registrar it is necessary to sign up for "Ethics, Social, and Political Philosophy" rather than the standard "Philosophy" major. In any case, it is necessary to get approval for either major from the Philosophy department.

100 Introduction to Philosophy
An introductory examination of the problems and scope of philosophy.
3 Lect Hrs 4 Credits
Staff

101 Projects on Contemporary Issues
Research will be conducted on relevant contemporary issues that relate to traditional philosophical problems.
1 Credit
Staff

104 Reasoning and Argument
This course is designed to introduce the student to the basics of reasoning, argumentation, and critical thinking. We will discuss criteria of sound reasoning, valid argumentation, common fallacies, basic informal logic. Course will depend heavily on examples and exercises, which will be drawn primarily from non-philosophical discourse, e.g. political statements, advertisements, news stories, comic strips.
3 Lect Hrs 3 Credits
Mr. Evans

105 Putting Reasoning into Effective Writing
This course is designed to help students perfect their skills in the presentation of writing, of reasoned argument and discourse. The course will focus on methods of analysis, definition, and conceptual clarification, types of argumentation, and the applicability of different types of argumentation in practical affairs. Throughout, the theme will be ways of effectively translating these intellectual skills into forceful prose for the purpose of communication and rational dialogue. This course satisfies one semester of the Freshman writing requirement.
2 Lab Hrs 4 Credits
Mr. Evans

108 Moral and Social Problems
Important moral and social issues of current concern will be examined and debated. The course covers three problems each semester from a list including: criminal punishment, war, abortion, racism, violence, the death penalty, private property and sexism. Students may sign up for any or all parts of this course and will receive one, two or three credits accordingly.
3 Lect Hrs 1-3 Credits
Mr. Blum, Mr. Cohen, Ms. Radden

120 Introduction to Logic
The forms of valid reasoning, deductive and inductive, and their role in reflective thinking, formal logic, truth functions, quantifiers, proofs of formal adequacy, the classical problem and new riddle of induction, reasoning with probabilities and elements of game theory.
3 Lect Hrs 4 Credits
Ms. Farrell-Smith

130 Philosophy of Education
Philosophical ideas and concepts relevant to the nature and aims of education.
3 Lect Hrs 3 Credits
Ms. Martin

211 Ancient Philosophy
Theories about being and not being, truth and falsehood, meaning and reference, knowledge and belief, perception and reason, good and evil, from the pre-Socratics to the Stoics, Epicureans, Skeptics, and Neo-Platonists, with emphasis on Plato and Aristotle.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 4 Credits
Mr. Andic

212 Modern Philosophy
The views of the continental rationalists — Descartes, Spinoza, Leibniz — and the British empiricists — Locke, Berkeley, Hume — in relation to general intellectual developments from the Renaissance to the Enlightenment.
Prerequisite: Philosophy 100.
3 Lect Hrs 3 Credits
Mr. Andic, Mr. Cohen, Ms. Radden

214 Contemporary Philosophy
Some major trends of analytical philosophy in the 20th century. Emphasis on the role of language in the formulations of proposed solutions to traditional problems in epistemology and metaphysics in the writings of such philosophers as Russell, Moore, and Wittgenstein.
Prerequisite: Philosophy 100.
3 Lect Hrs 3 Credits
Mr. Swartz

216 History of Ethics
Critical issues in moral philosophy as exhibited in the writings of Plato, Aristotle, Augustine, Hobbes, Kant, Mill, and Nietzsche.
Prerequisite: Philosophy 100.
3 Lect Hrs 3 Credits
Mr. Blum

218 Major Social and Political Thinkers
The primary concern of this course is historical: the elucidation of the political and social theories of some of the major figures of the Western tradition (e.g. Plato, Machiavelli, Hobbes, Rousseau, and Marx). Stress will be put on the continuing relevance of these philosophers by also using some works of contemporary philosophers and political scientists.
3 Lect Hrs 3 Credits
Ms. Martin

219 Moral Relativity
In this course we will consider whether there are respects in which moral judgments are relative and what the consequences of such relativity are — e.g. does it imply that basic moral disagreements can only be settled by force — we will also consider whether there are any aspects of a person's rational, emotional, or social nature that require him to hold some specific set of moral values rather than another.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Shope

220 Ethical Theory
The main problems and theories concerning the nature, scope and justification of value judgments. A systematic rather than historical approach.
Prerequisite: Philosophy 100.
3 Lect Hrs 3 Credits
Ms. Raymond

224 Philosophy of Art
Some of the major traditional problems in aesthetics, such as, the relationship between art and morality, the role of aesthetic experience and the nature of the imagination and tradition. These and related issues will be considered in classic texts supplemented by a contemporary survey of critical questions.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Andic

225 Philosophy of Religion
Traditional issues in the philosophy of religion such as arguments for the existence of God, the problem of evil and the problem of creation and time. Readings supplemented by contemporary approaches.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

227 Existentialism
Major forces and concepts in the development of existentialism.
Prerequisite: Philosophy 100.
3 Lect Hrs 3 Credits
Ms. Raymond

228 Philosophy of the Mind
The nature of mind and its relation to body and matter, with emphasis on recent advances in philosophy and psychology.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Shope, Mr. Swartz, Mr. Andic

247 Problems of Metaphysics
Ideas such as substance, causality, mind and body, and free will as they appear in several major metaphysical systems.
Prerequisite: Any intermediate course.
3 Lect Hrs 3 Credits
Staff

250 Materialist Theories of Mind
In this course we will discuss whether or not it is defensible to accept the view that mental phenomena are identical with either physical conditions (e.g. in the brain) or with dispositions toward physical behavior. Is such a view required for a scientific psychology? Readings from classical and contemporary sources.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Shope

275 Topics in Educational Theory and Philosophy
Designed for students with some background in philosophy. This course would focus on one or more problems in philosophy of education, examples of which are — the nature of teaching and learning, the justification of educational decisions, the aims and content of political, moral and religious education, the relationship between education and society, the nature of a liberal education.
Prerequisite: Introduction to Philosophy or permission of the instructor.
3 Lect Hrs 3 Credits
Ms. Martin

280 Social and Political Philosophy
Representative problems and themes of social and political philosophy especially the concepts of human rights, liberty, justice, equality, law, social obligation and the social contract.
Prerequisite: Philosophy 100.
3 Lect Hrs 3 Credits
Mr. Cohen, Mr. Blum

281 Determinism Freedom and Social Theory
A study of the implications of a free-will-determinism controversy for certain problems in social theory. Hard determinism, libertarianism and reconciliationism will be examined for their respective conceptions of human action. These views will be applied to such questions as, can we hold individual members of society responsible for their actions or for the conditions under which they live and how are the various rationales for punishing lawbreakers dependent on our conceptions of freedom; and what is a free society and is liberty a realistic political ideal?
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Cohen

285 Freud, Skinner and Philosophy
Clarification and appraisal of Skinner's philosophy of science (which he calls radical behavioralism), his value theory and epistemology, the nature of his fundamental concepts and the logic of the arguments in which he applies them to humans, as well as his objections to mentalistic theories such as psychoanalysis. Application of philosophy of science to Freud's views in order to clarify the concepts: unconscious, preconscious, the ego, the Id; to explain and assess the logic of Freud's arguments for the claim that there are causally active unconscious mental states; analyze psychoanalytic hypotheses about the 'meaning' of mental phenomena, their motives; and 'causes'; and to provide a critique of the concepts of psychic energy and wish fulfillment. Comparison of the strengths and weaknesses. Freud's and Skinner's views from a philosophical perspective.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Shope

287 Equality
The notion of equality between people, with particular reference to two prominent forms of social inequality — sex and class. Connection of equality to respect, self-respect, and dignity. Conceptions of a society in which everyone is equal. Issues of status, prestige, and social valuing and their relation to a person's valuing of himself or herself. Readings, Mill — *The Subjection of Women*, Sennett and Cobb — *The Hidden Injuries of Class*, De Tocqueville — *Democracy in America*, contemporary philosophers such as John Rawls, B.A.O. Williams, descriptions of egalitarian societies — Israeli Kibbutz, China, writings from the women's liberation movement.
3 Lect Hrs 3 Credits
Mr. Blum

288 Capitalism and Socialism
A comparative study of the philosophical foundations of two major systems of economic production and distribution. Through readings of representative authors, the course will focus on the values embodied in each system. For example: equality, justice, civil liberties, cooperation, and, individual initiative. The nature and importance of underlying assumptions about human needs and desires to either system will also be considered.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

289 Marxist Philosophy
Introduction to writings of early and mature Marx, Engels, and some contemporary Marxist thinkers. Several philosophical issues are explored in depth, contrasting the Marxist position with other philosophical theories. Issues are 1) alienation 2) theory of knowledge, 3) materialism and dialectical method, with major emphasis on 4) Marxist theory on the institution of the family and oppression of women. Readings in current socialist and feminist thinkers, e.g. Mitchell, Ronbotham, Zarethaky.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

290 Philosophy of Law
This course will investigate the internal aspects of law and legal systems, i.e. the nature of law, the structure of legal systems, criteria of legal validity, etc., all considering a legal system as an isolated closed system of concepts, postulates, rules of inference, deductions, and conclusions. The course will also be concerned with the external aspects of the law, i.e., those relationships which exist between the law itself, conceived simply as a body of rules, and other things external to itself. We will be concerned with the functions of law, the limits of lawmaking as an enterprise, and most especially the relationship between the law and morality
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Evans

295 Egoism, Selflessness and Love
An examination of some central issues in moral philosophy — are people concerned only with themselves, or is genuine love or altruism possible and is it good to be selfless, or is it only rational to pursue one's own interests. Does altruism involve self-denial and grounding of these issues and concepts in psychology and social theory. Reading from philosophers such

as Hobbes, Kant, Schopenhauer, Scheler, psychologists such as S. Freud, Horney, Anna Freud, and contemporary experimental work on altruism — reference to selfishness and selflessness in women, e.g. de Beauvoir — the social context of egoism and altruism, e.g R.H. Titmuss, the gift relationship.
3 Lect Hrs 3 Credits
Mr. Blum

297 Oriental Philosophy
Examination of theoretical and practical presuppositions and methods of three great Eastern traditions (Hinduism, Buddhism, Taoism), through study of classical texts and modern interpretations, discussion, and practice of basic meditation exercises. Special attention to interface of Eastern approaches and crucial problems in Western philosophy and psychology. Readings include selections from the Vedas and Upanishads, Bhagavid-Gita, selected Buddhist Hinayana and Mahayana texts. Tao-Te-Ching (Lao Tzu), selections from Chuang Tzu, and modern approaches of Huston Smith (Religions of Man), and Robert Orenstein (Psychology of Consciousness). Occasional guest speakers.
Prerequisite: Some background in Western philosophy or psychology is recommended.
3 Lect Hrs 3 Credits
Mr. Rothberg

300 Philosophy of History
Some special problems concerning the conditions of historical knowledge, such as the possibility of objectivity, the standards for justified explanation, the role of causal laws, and the place of value judgments.
Prerequisite: Any intermediate course or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Martin, Mr. Cohen

310 Philosophy of Action
Critical examination of fundamental topics in philosophy of action, the distinction between action and behavior, basic actions, the individuation of actions, ability and action, responsibility and action, knowledge of one's own actions, and the explanation of action. Discussion of the works of such philosophers as Austin, Melden, Davidson, Chisholm, Von Wright and Goldman.
Prerequisite: Philosophy 100 and one intermediate course.
3 Lect Hrs 3 Credits
Ms. Martin

320 Empiricism
A study of the major epistemological and metaphysical works of John Locke, George Berkeley and David Hume.
Prerequisite: 2 courses in philosophy.
3 Lect Hrs 3 Credits
Staff

340 Logic and Language
Topics in philosophy of language and logic. Theory of reference, meaning, relation between language and reality, role of logical analysis of language in Russell's theory of descriptions and its critics, liar paradox and theory of truth. Chomsky's views on language and mind. Relation between language and culture. Readings in current philosophy, linguistics. Course satisfies linguistics concentration.
Prerequisite: Two Philosophy courses, including one in logic; or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Farell-Smith

332 Major Currents of 19th Century Thought
German idealism, dialectical materialism, utilitarianism, existentialism, pragmatism and vitalism.
Prerequisite: Any intermediate course.
3 Lect Hrs 3 Credits
Staff

345 Theory of Knowledge
Knowledge — its nature, forms, methods, scope, and validation.
Prerequisite: Any intermediate philosophy course.
3 Lect Hrs 3 Credits
Mr. Swartz

346 Philosophy of Science
The nature of scientific explanation, with attention to the social and philosophical aspects of scientific methodology.
Prerequisite: Any intermediate course or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Shope

350 Philosophy of Anthropology
Theories of meaning, truth, reality, and knowledge in the study of alien, especially preliterate, societies and conceptual systems. Readings from Hume, Ayer, Pierce, Popper, Wittgenstein, Winch, Rhees, MacIntyre, Gellner, Evans-Pritchard, Horton, Jarvie, Douglas and Levi-Strauss.
Prerequisite: Philosophy 100 or one intermediate course or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Andic

351 Plato
Plato's ethics, metaphysics, and theory of knowledge in the *Phaedo, Republic, Theaetetus, Cratylus, Parmenides, Sophist, Statesman* and *Philebus*, as a solution to problems raised by his predecessors, notably the Pythagoreans, Heraclitus, Parmenides and the Sophists.
Prerequisite: Philosophy 211 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Andic

352 Aristotle
Aristotle's philosophy as a response to Plato's views about meaning, being, knowledge, ideas, number, and the good.
Prerequisite: Philosophy 211 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Andic

305 Philosophy and Literature
A study of concepts such as self-knowledge, knowledge of others, sympathy, freedom, happiness, fantasy, selfishness, self-deception, pleasure, feeling and desire as they find expression in works of literature. Readings will be selected from such works as *Middlemarch* by George Eliot, *Anna Karenina* by Tolstoy, *The Brothers Karamazov* by Dostoevsky, *Red and Black* by Stendhal, *Rememberance of Things Past* by Proust, *Under the Net* by Iris Murdoch.
Prerequisite: One intermediate philosophy course or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Andic

357 Kierkegaard
Theories of meaning, truth, knowledge, good and freedom in the aesthetic, ethical, and religious works of Kierkegaard, in contrast to those of Plato, Lessing, Kant, Hegel, and Simone Weil.
Prerequisite: Philosophy 100 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Andic

362 The Critical Philosophy of Immanuel Kant
The critique of pure reason, with special attention to Kant's epistemology and critique of metaphysics.

Prerequisite: Philosophy 212 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Swartz

365 Kant's Moral Philosophy and Its Critics
A study of Immanuel Kant's major ethical writings (groundwork of the metaphysics of morals; selections from the critique of practical reason, religion within the limits of reason alone) and of Kant's most significant critics of the 19th and 20th century. A. Schopenhauer (on the basis of morality), G.W.F. Hegel, F. Nietzsche, K. Marx, M. Scheler or N. Hartmann.
3 Lect Hrs 3 Credits
Mr. Blum

375 Philosophy and Psychoanalytic Psychology
Philosophical clarification of psychoanalytic concepts (e.g., unconsciousness, wish-fulfillment, psychic energy, the meaning of mental phenomena) and assessment of the justification for theoretical and clinical claims in psychoanalysis. Students are urged to read Freud's general introduction to psychoanalysis and some of the *Interpretation of Dreams* before the course.
Prerequisite: Psychology 101, 215, 220 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Shope

478 Independent Study I
Independent study on approved topics in philosophy.
Prerequisite: Approval of Philosophy Department.
3 Lect Hrs 3 Credits
Staff

479 Independent Study II
Independent study on approved topics in philosophy.
Prerequisite: Approval of Philosophy Department.
3 Lect Hrs 3 Credits
Staff

480 Group Independent Study
Group independent study on approved topics in philosophy.
Prerequisite: Approval of Philosophy Department.
3 Lect Hrs 3 Credits
Staff

481 Selected Special Topics in Philosophy
Selected special topics in philosophy.
Prerequisite: Philosophy 100 or 108.
3 Lect Hrs 3 Credits
Staff

501 Internship in Philosophy
Student will assist in direction of research on contemporary issues carried on in Philosophy 101.
Prerequisite: Permission of Philosophy Department.
1 Credit
Staff

PHYSICS

Faculty

D.V.G.L.N. Rao, Professor, Chairperson; Professors Donald H. Lyons, Freda Salzman, George Salzman; Associate Professors Marvin M. Antonoff, Leonard A. Catz, Edward S. Ginsberg, Harold P. Mahon, Arthur W. Martin, Martin Posner, John Shane; Assistant Professors Paul H. Keyes, Nareshchandra P. Shah

Requirements for Graduation

Majors must earn a minimum of 32 credits in Physics courses including Physics 211, 312, 321 and 4 credits of laboratory courses at the level of 281 or higher. Physics 371 counts as one of these laboratory courses. Physics majors must also complete Mathematics 310. Physics courses intended primarily for non-science students (Physics 121 to 150) are open to majors but do not normally count toward the minimum requirements for graduation. With the prior approval of the department, a physics major may complete up to 9 credits in lieu of advanced Physics electives. This prior approval is important. Physics majors are requested to plan ahead and to judge whether they will be seeking such approval. If so, they should submit a written note to the Chairperson of the department.

Most Physics majors (especially those planning graduate work and/or professional careers in physical science) will want to take more Physics and Mathematics than the minimum required for graduation. Additional courses recommended for students planning to pursue graduate studies are Physics 322, 350, 421 and 422, and two or more semesters of mathematics, such as Mathematics 311 and 320. Some graduate schools require a reading knowledge of Russian, German, or French. All majors are encouraged to gain facility in computer programming.

Whenever possible, Physics majors should begin their work in both Physics and Mathematics in the freshman year by enrolling in Physics 113-114, 181, 182, and Calculus. Students who are interested in Physical Science or Engineering, but who are not ready to move into Physics 113-114, should consider enrolling first in Physics 105-106.

Courses for Non-Science Majors

Courses numbered between 121 and 150 are intended primarily for non-science students. They all emphasize general ideas rather than technical details and are taught with minimal reliance on mathematics. The first semester of these courses has no prerequisites and is open to all students. They satisfy the natural science requirements and carry four credits. The interdisciplinary course Science for Survival (Intr-d 125-126) is taught principally by Physics faculty members and can be considered as part of the 121-150 series.

Introductory Physics Courses

Physics 105-106 is a laboratory centered course intended for students who are not necessarily well prepared in science or mathematics but who have scientific or technical inclination. It may also appeal to non-science students who prefer a practical, rather than theoretical, introductory course. Physics 107-108 is a course intended primarily for students majoring in biological or behavioral sciences. Familiarity with college level mathematics (algebra and trigonometry) is desirable. Physics 113-114 is a calculus level introductory course intended for students in the physical sciences, pre-engineering, and mathematics. Physics 211 completes the introductory sequence of calculus level courses.

105 Exploring the Physical World I
A laboratory-centered course that uses observation and measurement to approach the principles underlying everyday devices and phenomena. The course is intended especially for students with a technical or scientific inclination who are not well prepared in science and mathematics and therefore need an introductory foundation course. Also open to non-science students who enjoy laboratory work and prefer the practical to the theoretical.
2 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

106 Exploring the Physical World II
A laboratory-centered course that uses observation and measurement to approach the principles underlying everyday devices and phenomena. The course is intended especially for students with a technical or scientific inclination who are not well prepared in science and mathematics and therefore need an introductory foundation course. Also open to non-science students who enjoy laboratory work and prefer the practical to the theoretical.
2 Lect Hrs, 3 Lab Hrs 4 Credits
Staff

107 College Physics I
Non-calculus introductory physics for the student with a strong interest or background in science. Topics in mechanics, wave motion, heat, kinetic theory of gases, electricity, optics, atomic and nuclear physics. Biology majors, premedical students, and others who need or want laboratory work in physics should enroll concurrently in Physics 171-172. (Physics 181-182 is also available).
Prerequisite: Mathematics 130 or permission of instructor.
3 Lect Hrs, 1 Disc Hr 4 Credits
Staff

108 College Physics II
A continuation of Physics 107. Non-calculus introductory physics for the student with a strong interest or background in science. Topics in mechanics, wave motion, heat, kinetic theory of gases, electricity, optics, atomic and nuclear physics. Biology majors, pre-medical students, and others who need or want laboratory work in physics should enroll concurrently in Physics 171-172. (Physics 181-182 is also available).
Prerequisite: Physics 107 or permission of instructor.
3 Lect Hrs, 1 Disc Hr 4 Credits
Staff

113 Fundamentals of Physics I
Topics in classical physics, including mechanics, thermodynamics, and kinetic theory, basic concepts of calculus are introduced within the context of physical phenomena. Students who need or want laboratory work in physics should enroll concurrently in Physics 181. (Physics 171 is also available).
Corequisite: Mathematics 140.
Corequisite for Physics Majors — Physics 181 or 171.
3 Lect Hrs, 2 Disc Hrs 4 Credits
Staff

114 Fundamentals of Physics II
Electricity, magnetism, waves and light, further development of mathematical tools of physics. Students who need or want laboratory work in physics should enroll concurrently in Physics 182. Physics 172 is also available. Note: Phys 114 may be substituted for Math 150 as prerequisite for Math 240.
Corequisite: Mathematics 141.
Corequisite for Physics majors — Physics 182 or 172.
3 Lect Hrs, 2 Disc Hrs 4 Credits
Staff

121 Introduction to Astronomy I
Descriptive introduction to astronomy and astrophysics. Includes study of the planets, stars, galaxies, physics of space exploration and life on other worlds.
3 Lect Hrs 4 Credits
Staff

122 Introduction to Astronomy II
A continuation of Physics 121. Descriptive introduction to astronomy and astrophysics. Includes study of the planets, stars, galaxies, physics of space exploration and life on other worlds.
3 Lect Hrs 4 Credits
Staff

123 Concepts of Modern Physics I
A view of the natural world as revealed by physics. Emphasizing basic concepts and unifying principles. The course is presented at a level accessible to non-science students. The material is developed in historical context and includes topics of contemporary interest.
3 Lect Hrs 4 Credits
Staff

124 Concepts of Modern Physics II
A continuation of Physics 123. A view of the natural world as revealed by physics. Emphasizing basic concepts and unifying principles, the course is presented at a level accessible to non-science students. The material is developed in historical context and includes topics of contemporary interest.
3 Lect Hrs 4 Credits
Staff

131 Special Topics
One or more topics in physics, chosen for their current scientific significance and — or importance to society, will be covered. Scientific, technical and appropriate social aspects will be discussed. Specific topics and number of credits to be announced in preregistration booklet.
Prerequisite: Will be stated when specific topics are announced.
Staff 1-4 Credits

132 Energy
The problems of energy — what it is, how it is obtained and used, limitations on its generation from various sources and on its utilization — are considered from all aspects — scientific technical environmental, economic, etc. Topics include — theory of energy. Generation of energy from fossil, nuclear, solar, geothermal atmospheric, and other sources. General problems related to the production and consumption of energy, and problems specific to particular sources.
3 Lect Hrs 4 Credit
Staff

133 Introduction to Earth Science I
A descriptive introduction to geoscience, integrating such fields as geology, meteorology oceanography, and ecology. Emphasis is placed on understanding geophysical processes of importance to human beings and their environment. Topics included are — the origin of the earth, its energy and material resources earthquakes, volcanism, tides, the weather and other geophenomena, the evolution of life and the environmental impact of human technology.
Corequisite: Physics 135
3 Lect Hrs 4 Credi
Staff

134 Introduction to Earth Science II
A descriptive introduction to geoscience, integrating such fields as geology, meteorology oceanography, and ecology. Emphasis placed on understanding geophysical process of importance to human beings and their environment. Topics included are — the origin the earth, its energy and material resource earthquakes, volcanism, tides, the weathe and other geophenomena, the evolution of li and the environmental impact of huma technology.
Prerequisite: Physics 133. Corequisite: Physi 136.
3 Lect Hrs 4 Cred
Staff

135 Earth Science Laboratory I
A two-semester laboratory course designed accompany an introductory course in earth s ence (e.g. Physics 133-134). Basic expe ments include: examination of minerals, rock

nd fluid earth materials, analysis of sedimen-ary processes and weathering; study of diverse eological processes using topographic and eologic maps, aerial photographs, and field rips.
orequisite: Physics 133.
.5 Lab Hrs in Alternate Weeks 1 Credit
taff

36 Earth Science Laboratory II
A two-semester laboratory course designed to ccompany an introductory course in earth sci-nce (e.g. Physics 133-134). Basic experi-nents include: examination of minerals, rocks, nd fluid earth materials, analysis of sedimen-ary processes and weathering; study of diverse eological processes using topographic and eologic maps, aerial photographs, and field rips.
orequisite: Physics 134.
.5 Lab Hrs in Alternate Weeks 1 Credit
taff

71 Introductory Physics Laboratory I
A two-semester course designed primarily for iology majors and pre-medical students. Ex-eriments in basic physics on mechanics, elec-ricity and magnetism, and optics.
orequisite: Physics 107-108 or 113-114.
.5 Lab Hrs in Alternate Wks 1 Credit
taff

72 Introductory Physics Laboratory II
A two-semester course designed primarily for iology majors and pre-medical students. Ex-eriments in basic physics on mechanics, elec-ricity, magnetism, and optics.
orequisite: Physics 107-108 or 113-114.
.5 Lab Hrs in alternate weeks 1 Credit
taff

81 Physics Laboratory I
wo semesters of laboratory work in echanics, thermodynamics, electricity, mag-etism, and optics. Students are offered the pportunity to develop extended projects with he guidance of the instructor. The course is esigned for science majors or others having nterest in exploring and explaining physical henomena through laboratory work.
orequisite: Physics 107-108 or 113-114.
.5 Lab Hrs in Alterate Weeks 1 Credit
taff

82 Physics Laboratory II
he second semester of two semesters of aboratory work in mechanics, ther-odynamics, electricity, magnetism, and optics. Students are offered the opportunity to develop extended projects with the guidance of the instructor. The course is designed for science majors or others having interest in exploring and explaining physical phenomena through laboratory work.
Corequisite: Physics 107-108 or 113-114.
2.5 Lab Hrs. in Alternate Weeks 1 Credit
Staff

211 Introduction to Contemporary Physics
Special relativity, atomic physics and elements of quantum mechanics, introduction to elementary particle physics, nuclear physics and solid state physics.
Prerequisite: Physics 114.
Corequisite: Mathematics 240 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

221 Astrophysics, Relativity and Cosmology
Introduction to Einstein's theories of special and general relativity and the idea of curved space-time, application to cosmological theories of the universe, including the big bang and steady state models. Analysis of observation evidence for such theories.
Prerequisite: Physics 122 or permission or instructor.
3 Lect Hrs 3 Credits
Staff

281 Physical Laboratory I
Basic principles of experimental physics and error analysis. Experiments in mechanics, heat, optics, electricity, magnetism, atomic and nuclear physics.
Prerequisite: Physics 172 or 182 or permission of instructor.
4 Lab Hrs 2 Credits
Staff

312 Mechanics
Principles of Newtonian mechanics, conservation laws, gravitational potential theory and conservative fields, central forces, oscillatory systems, rigid body rotation and relativistic mechanics.
Corequisite: Mathematics 310.
Prerequisite: Physics 211 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

321 Theory of Electricity and Magnetism I
Basic concepts of electric and magnetic fields, electrostatics, magnostatistics, electric currents, electromagnetism, development of Maxwell's equations and simple applications, physical optics, reflection, dispersion, polarization and diffraction.
Prerequisite: Mathematics 240, Physics 312 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

322 Theory of Electricity and Magnetism II
A continuation of Physics 321. Description of the phenomena of electricity and magnetism in mathematical terms, boundary value problems and boundary conditions, transmission lines, wave guides, radiation from a moving charge, special relativity.
Prerequisite: Physics 321, Mathematics 270.
3 Lect Hrs 3 Credits
Staff

350 Statistical Physics
Topics in heat, thermodynamics, kinetic theory, and elementary statistical mechanics.
Prerequisite: Physics 312 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

371 Basic Electronics with Lab
Direct current circuits, electrical measurements, alternating current circuits, circuit analysis, diodes, rectifier circuits, filters, voltage regulators, vacuum tubes, transistors, amplifier circuits, oscillators, comparison measurements, elements of servo systems, operational amplifiers, pulse amplifiers.
Prerequisite: Physics 114, 172 or 182.
1 Lect Hr, 4 Lab Hrs 3 Credits
Staff

374 Digital Electronics
Concepts of digital measurements, counting, timing and switching, basic logic concepts, basic theorems in Boolean algebra, manipulation of logic statements, binary information gates, application of logic gates, flip-flops and multivibrators, counters, registers and readouts, digital, analog-digital instruments, and microprocessing systems.
Prerequisite: Physics 371.
3 Lect Hrs 3 Credits
Staff

382 Intermediate Laboratory
Experiments in geometrical and physical optics, electronics, atomic physics, nuclear physics, individual program of experiments for each student according to his interests and previous experience.

Prerequisite: Physics 281.
Corequisite: Physics 321 of permission or instructor.
4 Lab Hrs 2 Credits
Staff

421 Atomic Physics and Introduction to Quantum Mechanics
The fundamental and elementary applications of quantum mechanics with emphasis on physical content rather than formalism. Elementary wave mechanics developed and applied to simple atomic structure. Topics include spectroscopic and other phenomena which form the experimental basis of modern atomic physics, the role of the Pauli principle and spin in determining periodic atomic properties, radiation phenomena.
Prerequisite: Physics 312 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

422 Nuclear and Particle Physics
A continuation of Physics 421. The basic properties of nuclei, particle scattering, radioactivity, nuclear stability, dynamics of nuclear reactions, potential well and barrier problem in quantum mechanics, particles.
Prerequisite: Physics 421.
3 Lect Hrs 3 Credits
Staff

430 Introduction to Solid State Physics
An introductory treatment of the physics of solids.
Prerequisite: Physics 350 and 421.
3 Lect Hrs 3 Credits
Staff
Offered in alternate years.

479 Readings in Physics I
Supervised individual study of special topics in physics that are not available in a regular course.
Prerequisite: Junior standing, approval of plan of study by supervising instructor and by department chairperson.
Hrs by Arrangement 1-3 Credits
Staff

480 Readings in Physics II
Supervised individual study of special topics in physics that are not available in a regular course.
Prerequisite: Junior standing, approval of plan of study by supervising instructor and by department chairperson.
Hrs by Arrangement 1-3 Credits
Staff

487 Research in Physics
Supervised research.
Prerequisite: Junior standing and approval by supervising instructor and department chairperson.
Hrs by Arrangement 1-3 Credits
Staff

488 Research in Physics
Supervised research.
Prerequisite: Junior standing and approval by supervising instructor and department chairperson.
Hrs by Arrangement 1-3 Credits
Staff

POLISH

101 Elementary Polish I
For students with no previous knowledge of Polish. Development of the four language skills, based on an audio-lingual approach.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

102 Elementary Polish II
A continuation of Polish 101. For students with no previous knowledge of Polish. Development of the four language skills based on an audio-lingual approach.
4 Lect Hrs, 2 Lab Hrs 4 Credits
Staff

201 Intermediate Polish I
An intensive review of grammar and practice in speaking, hearing, reading and writing.
Prerequisite: Polish 102.
4 Lect Hrs 4 Credits
Staff

202 Intermediate Polish II
An intensive review of grammar and practice in speaking, hearing, reading and writing.
Prerequisite: Polish 201.
4 Lect Hrs 4 Credits
Staff

POLITICAL SCIENCE

Faculty

Arthur P. Simonds, Assistant Professor, Chairperson; Commonwealth Professors William Roy Hamilton, Franklin Patterson; Professors George Goodwin, Jr., Robert J. Steamer, Glenn E. Tinder; Associate Professors Arnold Beichman, Thomas P. Kanza, Sanford R. Lieberman, Diane Paul, Primo Vannicelli; Assistant Professors Paul E. Beard, Mona A.H. Gagnon, Talbott W. Huey, Janet Kelly, Morris Lounds, Alan Posner, John Spence, James Ward; Instructor Keitha Fine

Requirements for Graduation

All majors in Political Science must take Pol. Sci. 122, Pol. Sci. 123 and eight additional courses in Political Science of which at least one must be taken in each of the following four areas:

The Politics of an Industrial Society
The Politics of a Transitional Society
International Relations
Political Theory

Students who complete the requirements of a second major or of a concentration in addition to their Political Science major may, with the approval of their advisor, apply up to two courses in cognate fields toward this total of ten.

No more than three courses in practical politics or internships, and no more than three courses in independent study or honors work may be counted toward these requirements.

Students who have done distinguished academic work in the Department may wish to write an honors thesis during their senior year. Those interested in such a project should consult with their advisor prior to the completion of their junior year.

122 Government and Politics of the United States
The three main branches of the national government, federalism, political parties and interest groups, and governmental functions.
3 Lect Hrs 4 Credits
Staff

123 Political Ideas of the Twentieth Century
Major political viewpoints of the present, including conservatism, liberalism, Marxism and Fascism.
3 Lect Hrs 4 Credits
Staff

200 Comparative Politics
Introductory study of foreign political systems. Examines industrial and Third-World systems and focuses on comparative patterns of political change.
3 Lect Hrs 3 Credits
Mr. Huey

20 International Relations
Analysis of the basic principles and concepts which explain the behavior of states as they interact with each other. Examination of the struggle for power and the search for order in historical and contemporary perspective. Special attention to: the causes, functions, and effects of war, the role of power, national interest, foreign policy-making, nationalism, the Third World, ideology and technology in international politics; emerging patterns of transnational interdependence.
Lect Hrs 3 Credits
Mr. Posner, Mr. Vannicelli

30 Introduction to Political Analysis
The principal topics will include philosophical foundations to political science, research methods, and statistical approaches.
Lect Hrs 3 Credits
Mr. Ward

03 Public Policy I
Political aspects of social and economic policies in the United States. Analysis of both empirical and normative factors in the formation of public policy.
Prerequisite: Junior standing.
Lect Hrs 3 Credits
Mr. Beard

04 The Political Novel
A study of contemporary political realities and ideas as these are illuminated by novels. Subjects studied include revolution, tyranny, fanatisism, liberalism, alienation, and personal responsibility. Such writers as Silone, Koestler, Trilling, Dos Passos, Kafka, Malraux, and Marquez.
Prerequisite: Junior standing or permission of instructor.
Lect Hrs 3 Credits
Mr. Tinder

305 Images of World Politics in Film and Literature
Examination of political symbolism, both as an approach to political analysis and as a source of information on non-American political systems. Films and related readings on past, present, and future visions of politics.
Prerequisite: Political Science 200 or equivalent.
Lect Hrs 3 Credits
Mr. Huey

307 Political Change and Group Identity
The course will be concerned with the impact of group identity — racial, tribal, religious, ethnic, national — on political systems in the developing and developed countries.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Lounds

309 Political Behavior
Introduction to the study of political behavior, including relationships between characterological elements and political attitudes and actions; processes by which societies teach members to behave politically, and national differences in political socialization emerge.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Patterson

311 Political Parties
The American political process, with emphasis on political parties, pressure groups and public opinion.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Goodwin

315 Political Decision-Making
The way in which decision-making is shaped by the political environment in both the public and private sectors.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Staff

318 The Legislative Process
The function of national and state legislatures, and the role played by political parties and interest groups in the legislature.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Goodwin

324 The American Presidency
The powers, the limitations, and the organization of the Presidency in the American system of government.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Beard

325 Public Administration
The bureaucratic process, emphasizing organizational behavior, changes in administrative institutions and theories, and the political role of bureaucracy.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Beard

327 Public Management I
This course explores the dimensions of government organizations as they attempt to attain their politically approved goals while maintaining their own integrity. Political bureaucracies in Massachusetts will provide the major source materials for study.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Hamilton

328 Public Management II
Prerequisite: Politics 327 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Hamilton

329 American Constitutional Law and Theory
The development of the United States Constitution, chiefly through decisions of the Supreme Court. Emphasis on the origin and nature of judicial powers, the way it inhibits and facilitates operation of the political process and the search for standards by which to judge the judges.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Gagnon, Mr. Spence, Mr. Steamer

332 Civil Liberties in the United States
An analysis of the constitutional rules governing civil liberties in the American system, primarily through decisions of the Supreme Court. Emphasis on four areas: freedom of press and speech, freedom of religion, rights of persons suspected or accused of a crime, and the development of status of rights of blacks and other minorities.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Gagnon, Mr. Spence, Mr. Steamer

338 Massachusetts Politics
A study of state and local government and politics in Massachusetts, emphasizing its unique features as well as its similarities to other state systems.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Donahue

341 Metropolitan Politics
Municipal politics, organization and functions, special references to impact of recent social and economic changes upon city, suburban and intergovernmental politics in metropolitan regions.
Prerequisite: Junior standing.

3 Lect Hrs 3 Credits
Ms. Paul, Mr. Spence

344 Problems of Urban Politics
Some of the philosophical issues raised by urbanization — are cities necessary and is the relatively democratic structure of the American cities responsible for some of their problems and has there been a revolution of rising expectations in urban life. Considered in historical and comparative perspectives.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Paul, Mr. Spence

351 The Politics of National Development
The extent to which elements of the Third World have progressed from statehood to nationhood during the quarter century following the great anti-colonial revolution.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Staff

353 European Political Development
An examination of the effects of revolution, industrialism and social and cultural change on the political institutions of England, France and Germany in the nineteenth century. The modernization of government and administration, electoral reform, class and party politics, will be among the topics considered from the perspective of their contribution to the establishment of democracy.
Prerequisite: Any course in modern European history.
3 Lect Hrs 3 Credits
Mr. Simonds

354 Postwar European Problems
A comparative review of postwar problems in Europe — postwar recovery parties and institutions, defense, multinational corporations, and political opposition.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Posner

355 Comparative Rural Politics
An advanced course to investigate the politics of non-urban peoples around the world, especially peasants. Discussion will focus on the implications of rural and peasant life for social and political change. Students will read extensively and give book reports in class.
Prerequisite: Pol. Sci. 200 or equivalent.
3 Lect Hrs 3 Credits
Mr. Huey

356 Comparative Public Administration
An examination of the relationship of bureaucracy to democratic objectives in the context of advanced industrial society, with case studies drawn from the United States, Soviet Union, Yugoslavia and Israel.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Fine

360 Government and Politics of Britain
Political institutions as they exist in the land of ultrastability, social accommodation and circulatory elitism. Comparisons with institutions in other western democracies.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Staff

363 Government and Politics of the Soviet Union
The historical and ideological origins of the Soviet Union, the role of the Communist Party in Soviet society, interest groups in the Soviet Union and the nature of Soviet society today.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Lieberman

365 Forms of Domination in Contemporary Capitalist Society
An examination and critique of the ways in which power is exercised in advanced capitalist societies concentrating on the instruments of the state, the market, and culture.
3 Lect Hrs 3 Credits
Mr. Simonds

371 Latin American Government
An analysis of social structure and political behavior of various groups in Latin America, of a variety of forms of political participation at grass roots and national levels, and of the influence of technologically advanced countries on the politics of Latin America.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Spence

387 East Asian Revolutions
A study of the Chinese revolution of the 20th century and contemporary Chinese government.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Huey

388 Revolution in Southeast Asia
Concentrates on the experience of the Vie namese revolution of the past 20 years compa ing it with political developments in othe South East Asian countries.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credi
Mr. Huey

391 Government and Politics of Africa
African government and politics with emphas on stability in African political systems and c the role of emphasis of tribes, political partie armies, and government bureaucracies.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credi
Mr. Kanza

392 Government and Politics of Africa
A continuation of Politics 391. African gov ernment and politics with emphasis on stabilit in African political systems and on the role c tribes, political parties, armies, and goverr ment bureaucracies.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credi
Mr. Kanza

402 World Politics and World Order
The study of recent developments in interna tional law and organization, regionalism, th politics of economic interdependence, an arms control with emphasis on the United N tions systems and the European communitie Examination of strategies for dealing with i ternational conflict.
Prerequisite: Politics 220 (International Rel tions) or permission of instructor.
3 Lect Hrs 3 Credi
Mr. Posner

411 International Organizations I
The development of international organizatio as a response to the needs of the internation community, and as a functional approach t world peace. Emphasis on the United Natio and its specialized agencies.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credi
Mr. Kanza

412 International Organizations II
Continuation of Politics 411, emphasizing r gional political and economic organization and the administration of international rel tions.
Prerequisite: Junior standing.

3 Lect Hrs 3 Credits
Mr. Kanza

415 Law and International Relations
An examination of the primary functions of law in international relations, and the way in which law operates in international practice. Major issues covered include the role of law in the control of the use of force by nations, both historically and in relation to the current international scene, and the changes in law relating to private economic activity such as the law of the sea, responsibility for the protection of the environment, and national control of corporations. Course work based on both casebook and text materials.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Gagnon

416 Intervention in International Law
A study of the legal norms defining the problem of interference by outside forces in the internal affairs of a state, including questions of interference by other states, by international organizations and by private corporations.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Gagnon

420 Imperialism
This course is designed to examine the various purposes (economic, political, social, cultural) served by policies of imperialism in both its overt and ambiguous forms, as an aspect of international relations in the nineteenth and twentieth centuries — that is, the era marked economically by an international process of industrialization. Course material consists of analyses and explanations of the imperialist phenomenon advanced by both theoreticians, Marxist and liberal, and practitioners.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Ms. Gagnon

421 War
An advanced course in international relations exploring the problem of war from many points of view, theoretical and practical. These include the history, nature and causes of war, strategy in the course of war, legal and ethical questions, as well as proposals to avoid war (arms control, disarmament, social revolutions, etc.).
Prerequisite: One international relations course.
3 Lect Hrs 3 Credits
Ms. Kelley

424 American Foreign Policy
Major issues and problems of American foreign policy in the contemporary world. The domestic sources of foreign policy. Problems examined will vary from year to year.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Posner

430 Foreign Policy of the Soviet Union
Topics include continuity and change in Russian and Soviet foreign policy, the role of ideology and national interest, the origin of the Cold War, the Sino-Soviet dispute and Soviet-East European relations.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Lieberman

451 Ancient and Medieval Political Thought
The origins and the early development of the main political ideas of the West.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Ward

452 Modern Political Thought
The history of Western political ideas from the time of Machiavelli to that of Marx.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Simonds, Mr. Ward

454 Recent and Contemporary Political Thought
A study of twentieth century political and social thought with incidental attention to certain influential thinkers of the nineteenth century. The differences among the various schools of thought such as the New Left, conservatism, behavioralism, and existentialism will be stressed and critically examined.
3 Lect Hrs 3 Credits
Mr. Tinder

455 Problems of Political Theory
A non-chronological study of the perennial questions dealt with by political philosophers. Attention will be given to identifying basic problems inherent in political existence regardless of whether they were articulated by a political group. This course will be concerned primarily with developing the students' capacity to think politically rather than with the history of political ideas.
Prerequisite: Political Science 123 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Tinder

459 Karl Marx
An investigation of the origins of modern critical social theory through extensive reading from Marx's entire body of writings.
3 Lect Hrs 3 Credits
Mr. Simonds

462 Socialism in the Modern World
The origins and doctrines of modern socialism with particular emphasis on Marxist-Leninist thought. Topics include Utopian and guild socialism, fabianism, syndicalism, Titoism, Marxian revisionism, Maoism, and socialism in the United States.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Lieberman

464 New Left Politics and Theory
During the first half of the course students will be exposed to the major currents of Marxist thought in the twentieth century, as represented primarily in the writings of East and West European Marxist revisionists. This will provide the background for the second half of the course in which students will research the political movements known as the New Left in France, Italy, and the United States.
3 Lect Hrs 3 Credits
Ms. Fine

465 Women in Revolutions
The course is designed to explore two interrelated problems: 1. The content of traditional Marxist theory and the woman question, and its impact on some now famous Bolshevik women who became revolutionary activists, and 2. the special political and personal choices faced by these women who were oppositionists along several dimensions: politically (by adopting a Marxist framework for their praxis), often against their class of origin, and by dint of their sex.
Prerequisite: Introductory Pol. Sci. or history course.
3 Lect Hrs 3 Credits
Ms. Fine

468 American Political Thought
An analytical and historical study of the development of American political thought and institutions from colonial times. Primary source readings feature the ideas and deeds of those who have shaped the American concept of free government.
Prerequisite: Junior standing.

3 Lect Hrs 3 Credits
Ms. Paul

470 Christianity and Politics
Reflection on political problems as seen from various Christian standpoints. Current problems, and contemporary recent Christian thinkers, will be emphasized. Particular attention will be paid to the diversity of insights that Christianity makes available and to the occasions for critical reflection that are thus provided.
Prerequisite: Junior standing.
3 Lect Hrs 3 Credits
Mr. Tinder

477 Special Topics in Politics
Intensive study of topics in politics. Course content and credit will vary each semester and will be announced during the advance registration period. Fulfills social science core requirement.
Hrs by Arrangement 1-3 Credits
Staff

478 Independent Study
A course of reading and investigation designed to supplement regular departmental offerings. Topics will be worked out by instructor and student. Regular papers will be required.
Hrs by Arrangement 3 Credits
Staff

479 Independent Study
A course of reading and investigation designed to supplement regular departmental offerings. Topics will be worked out by instructor and student. Regular papers will be required.
Hrs by Arrangement 3 Credits
Staff

480 Seminar
Intensive studies in various important fields.
Staff

481 Seminar
Intensive studies in various important fields in politics. Emphasis on independent research. By invitation of department.
3 Lect Hrs 3 Credits
Staff

484 Special Problems in the Field of Politics I
Seminar in the field of practical politics generally taught by professional politicians. By invitation of department.
3 Lect Hrs 3 Credits
Staff

485 Special Problems in the Field of Politics II
Seminar in the field of practical politics generally taught by professional politicians. By invitation of department.
3 Lect Hrs 3 Credits
Staff

486 Seminar — Africa and World Politics I
Intensive study of the newly independent states of Africa and their impact on world affairs.
Prerequisite: Politics 391 or 392 or permission of instructor.
3 Lect Hrs
Mr. Kanza

487 Seminar — Africa and World Politics II
A continuation of Pol. Sci. 486, this seminar will concentrate on regional African groupings, the concept of African unity, the impact of multinational corporations, and the effect of foreign aid and technical assistance.
Prerequisite: Junior standing and permission of instructor.
3 Lect Hrs 3 Credits
Mr. Kanza

488 Field Work in Politics I
Carefully supervised field work. Available only to a limited number of qualified students in any one semester. Written prospectus of the Project, periodic conferences with a faculty advisor, and appropriate written work required.
Prerequisite: Completion of a relevant course, and permission of department.
3 Lect Hrs 3 Credits
Staff

489 Field Work in Politics II
Carefully supervised field work, available only to a limited number of qualified students in any one semester. Written prospectus of the project, periodic conferences with a faculty advisor, and appropriate written work required.
Prerequisite: Completion of a relevant course, and permission of department.
3 Lect Hrs 3 Credits
Staff

490 Special Problems I
Guided reading in special areas of politics. May be used for honors thesis. By invitation of department.
Hrs by Arrangement 3 Credits
Staff

491 Special Problems II
Guided reading in special areas of politics. May be used for honors thesis. By invitation of department.
Hrs by Arrangement 3 Credits
Staff

492 Directed Reading in Politics
Reading of 4-6 books on a special topic and preparation of a 10-15 page critical analysis. Lists of topics and pertinent readings will be prepared by individual faculty members. Upon completion of a project, students will submit the required paper for departmental evaluation (on a pass-fail basis only). Limited to one project per academic year.
Prerequisite: Junior standing or departmental permission.
Hrs by Arrangement 1 Credit
Staff

493 Directed Reading in Politics
Reading of 4-6 books on a special topic and preparation of a 10-15 page critical analysis. Lists of topics and pertinent readings will be prepared by individual faculty members. Upon completion of a project, students will submit the required paper for departmental evaluation (on a pass-fail basis only). Limited to one project per academic year.
Prerequisite: Junior standing or departmental permission.
Hrs by Arrangement 1 Credit
Staff

590 Field Practicum in Politics
Prerequisite: Approval of Political Science Department.
Hrs by Arrangement 9 Credits
Staff

PORTUGUESE

315 Brazilian Literature
Twentieth century Brazilian literature from modernism to the present day. Conducted in Portuguese.
3 Lect Hrs 3 Credits
Ms. Porto Slover

320 Nineteenth Century Portuguese Literature
Selected authors and works.
3 Lect Hrs 3 Credit
Ms. Porto Slover

321 Twentieth Century Portuguese Literature
Selected authors and works.

Lect Hrs 3 Credits
Ms. Porto Slover

80 Studies in Portuguese Literature
pecial Topics.
Lect Hrs 3 Credits
Ms. Porto Slover

PSYCHOLOGY

aculty

teven Schwartz, Associate Professor, Chairerson; Professors Robert Kastenbaum, Berard Kramer, Donald Krus, Bernard osenblatt, Maxwell Schleifer; Associate Proessors James Brennan, Dennis Byrnes, Paul T. osta, Claire Golomb, Barbara Ross, Ina amuels; Assistant Professors Augusto Blasi, awrence Gaines, Joan Liem, Mildred McInre, Brian Mishara, Donald Mixon, Celia loore, Howard Ramseur, Edward Strickland, bel Ventura; Lecturers Marvin Berkowitz, andra Bertman, Arthur Blumenthal, Paul uffly, Helen Flusberg, Sheldon Kalick, Kalan Kaplan, Carolyn Mebert, John F. Murhy, Jeffrey Rosen, Susan Schenkel, Jonathan lavin, Yehoshua Tsal, Marian Wilson; Visitg Assistant Professors Melvin Barton, Peter umpert, George Michel, Adjunct Associate rofessor Todd Eachus.

equirements for Graduation

The requirements for a major in Psychology or students declaring their major are as follows:

Psychology 101
Psychology 102 or 212 or 270

Two 200 level courses from Section A (Genral Theory and Method, Psychobiology, Inormation Processing)
Two 200 level courses from Section B Clinical-Personality, Developmental, Social)
Two advanced courses from the 300-400 evel from any area.
One additional course from any area at any evel.
A grade of "C" is required for satisfactory ompletion of all courses intended to fulfill equirements for a major in Psychology.
Majors who intend to apply to graduate deartments of psychology are strongly advised o take Systems of Psychology or History of sychology, Advanced Research Methods, and Laboratory Methods course (e.g., Experimental Psychology, Methods in Animal Behavior).

Requirements for a major in Psychology are currently under discussion and may be revised for students declaring their major in September, 1978.

101 Introductory Psychology
A general survey of selected content areas in psychology, including personality and human development, physiological psychology, learning, intelligence, heredity and environment, motivation and emotion.
3 Lect Hrs 4 Credits
Ms. Samuels, Staff

102 Introduction to Psychological Research
Basic methods used by psychologists in the scientific study of behavior. Experimental, naturalistic observation, clinical case-study methods, etc. will be considered. Elementary descriptive statistics.
Prerequisite: Psychology 101.
2 Lect Hrs, 1.5 Lab Hrs 4 Credits
Mr. Byrnes, Mr. Mixon

200 Personality
Comparative approach to personality theories of Allport, Cattell, Freud, Maslow, Murray, Kelley, ego psychologists, self-theorists and others. An examination of theorists' conceptions of human nature is used as a framework for discussing their formal theories. Empirical research on the theories and their applications also considered.
3 Lect Hrs 3 Credits
Mr. Costa, Mr. Ramseur, Mr. Gaines

202 Human Motives and Emotions
Investigation of the basic motivational and emotional dynamics underlying human behavior, with emphasis on experimental and conceptual approaches.
Prerequisite: Psychology 101 and 102.
3 Lect Hrs 3 Credits
Mr. Gaines

212 Advanced Research Methods in Psychology
Advanced aspects of research design, methods of analysis, inferential statistics will be covered.
Prerequisite: Psychology 101 and 102 or 270.
3 Lect Hrs 3 Credits
Mr. Schwartz

215 Psychopathology
Etiology, dynamics and treatment of psychopathology.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Gaines, Mr. Ramseur, Ms. McIntyre

220 Psychoanalysis and the Study of Man
Basic psychoanalytic concepts applied to the study of man.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Rosenblatt

230 Social Psychology
A scientific attempt to understand and explain how the thought, feeling, and behavior of individuals are influenced by the actual, imagined, or implied presence of others — focuses on the drama of social interaction.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Mixon

231 Laboratory in Social Psychology
The general purpose of the course will be to introduce the student to experimental research methods in social psychology. Class activities will include examination of the relevant literature, participation in predesigned studies, and the formulation, carrying out and analysis of an original research project. The student will have an opportunity to become familiar with the use of laboratory equipment such as audio and video recorders, event recorders, and physiological measurement devices.
Prerequisite: Psychology 230.
3 Lab Hrs 3 Credits
Staff

232 Community Psychology
Contributions of psychology to the understanding of human communities. Community mental health, ecological, and social structural approaches to community psychology are examined.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Schleifer, Ms. Liem

233 Psychology of Language
Behavioral and physiological approaches to the processes underlying language and thought, and of the interrelationships between them.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Staff

235 Psychology and the Afro-American Experience
This course is an examination of theory and research, primarily by psychologists, that bears

on the Afro-American experience. The course focuses on the psychological literature, but also draws upon other social science disciplines, case studies, and relevant works of fiction. Major topics of the course are the Black family and child development, Black identity and personality, Black social activism, and the dynamics of individual and institutional racism.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Ramseur

236 The Psychology of Women
Psychological theories about women from Freud to the present will be examined, with emphasis placed on biological and sociocultural perspectives as they have influenced the development of a psychology of women. Special attention will be paid to the developmental process and the unique issues and concerns of the female infant, child, adolescent, young adult, and older woman.
Prerequisite: Psychology 101. Recommended: Psych 230 or 240 or 241.
3 Lect Hrs 3 Credits
Ms. Liem

237 Community Health and Medical Care
An examination of psycho-social characteristics and determinants of community health and medical care.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Kramer

240 Life-Span Developmental Psychology
Cognitive, social and personality development throughout the entire individual life cycle.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Ms. Golomb

241 Infancy and Childhood Development
This course explores human development from infancy to middle childhood, i.e., from childbirth to ages seven or eight. Major emphasis will be placed on early perceptual, cognitive, social and affective development bearing the following questions in mind: how does the world of space and objects appear to the infant? How does he acquire knowledge and discover reality? How does the child experience the world of people and develop a sense of self? How does the child develop attachments to others and what role do the significant people play in his life?
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Ms. Golomb

242 Adolescence
This course is designed to acquaint students with psychological characteristics of adolescent development, theoretical approaches to adolescence, and experimental studies of the causes of a variety of behaviors during adolescence. The course will also focus upon major problems and characteristics of adolescents in modern society.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Mishara

243 Psychology of Human Aging
A developmental approach to human integrity and functioning in the second half of the lifespan. Stereotyped ideas about the aging process are critically reviewed. Special attention is given to newer approaches to facilitating psychological well-being in the later years of life.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Mishara, Mr. Kastenbaum

244 Death, Dying and Lethal Behavior
Explores our total relationship to death. It draws upon material from psychology and related fields, and from personal experience and events of the day.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Kastenbaum

245 Educational Psychology
Application of psychological concepts to education with emphasis on the role of the school, the family, the classroom, and the teacher in the educational process.
3 Lect Hrs 3 Credits
Mr. Schleifer

250 Learning
An introduction to current views of learning, and its development, concepts, application, theoretical issues and behavioral change.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Byrnes, Mr. Strickland

251 Laboratory Methods in Learning
Lab experiments with both animal and human subjects covering diverse learning phenomena.
Prerequisite: Psychology 102 or 270 and 250 (may be taken with 250).
1 Lect Hrs, 4 Lab Hrs 3 Credits
Mr. Byrnes

255 Perception
The traditional problems of perception, wit focus on the changing theoretical perspective within which these problems are viewed Evolution in theory from early elementalisti approaches to the more current concern wit the perception-personality relationships.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credit
Mr. Krus, Mr. Byrnes

256 Laboratory in Perception
Introductory laboratory methods and dat analysis used in the study of perception.
Prerequisite: Psychology 101 and 255.
3 Lab Hrs 3 Credi
Staff

260 Physiological Psychology
An examination, in depth, of selected topics i physiological psychology, including evolutio of vertebrate nervous system, communicatio in the central nervous system, physiologic methods, emotion, reward and punishment.
Prerequisite: Psychology 101 or Introductor Biology.
3 Lect Hrs 3 Credi
Ms. Samuels

265 Comparative Psychology
Evolution of behavior, similarities and diffe ences for environmental adjustment and for b havioral organization among various types living organisms from plants to unicellular c ganisms to the primates, including man.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credi
Ms. Moore

266 Laboratory in Animal Behavior
The lab will introduce practical aspects of t study of species — typical behavior. Both o servational and experimental techniques will used with a variety of behavior patterns in variety of species.
Prerequisite: Psychology 101 and 102 or 2 and 265. (May be taken with 265).
3 Lect Hrs 3 Cred
Ms. Moore

270 Statistics
Scientific method as it applies to psycholo and the role of statistics within that metho Fundamental statistical concepts a techniques, primary stress is on the logic whi underlies their use as descriptive and analy tools in psychological inquiry.
Prerequisite: Psychology 101 and high sch

gebra or Math 130 (students should take sych 120 or Psych 270 not both).
Lect Hrs 3 Credits
taff

75 Experimental Psychology
cientific methods in general and experimental ethods in particular are covered. Emphasis is laced on developing the ability to critically valuate the evidence upon which various assertions are made.
rerequisite: Psychology 101.
Lect Hrs 3 Credits
Ir. Schwartz, Mr. Strickland.

80 History of Psychology
n examination of various views of man over me and the treatment of basic philosophical-sychological questions. The objective of the ourse is for the student to gain a sense of anging emphasis relative to broad issues such s socio-cultural factors, intellectual, chnological advances, etc.
rerequisite: Psychology 101.
Lect Hrs 3 Credits
Is. Ross

85 Psychology, Psychiatry and the Law
he course will cover several issues that jointly oncern lawyers, psychiatrists, and psychol-gists working in the mental health field. Such sues include involuntary civil commitment of e mentally ill, criminal responsibility tests, nd the special handling of dangerous offen-ers. Each of these issues raises serious ethodological and philosophical questions for l the professionals who participate in the deci-on making process. The assigned readings ill focus on some of the substantive problems ised by these questions and the conflicting ethodologies often employed by the different rofessional disciplines in their attempt to re-olve the inevitable tension between the rights f the individual and the rights of a society.
Lect Hrs 3 Credits
taff

91 Environmental Psychology
nvestigation of the effects of the physical envi-onment on people and vice-versa. Examina-on of such issues as how different individuals nd groups respond to the physical environment: itizen participation in environmental plan-ing.
Lect Hrs 3 Credits
taff

300 Psychological Testing
An examination of the assessment process and the methods (tests interviews, observations) used in it. Emphasis on the standards of validity for tests and procedures and on proper test use. Introduction to some major psychological tests.
Prerequisite: Psychology 101 and 102 or 270.
3 Lect Hrs 3 Credits
Mr. Schleifer, Mr. Costa

310 Time, Space and Fantasy
Far-ranging exploration of the human imagination as applied to the dimension of time and space.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Mr. Kastenbaum

330 New Approaches to Social Psychology
Seminar in recent theoretical, empirical and methodological developments in social psychology.
Prequisite: Psychology 101 and 230.
3 Lect Hrs 3 Credits
Mr. Mixon

331 Nature of Prejudice
Examination of psychological and socio-cultural factors in intergroup prejudice. Will use the classic work by Gordon Allport as an analytic framework and incorporate subsequent developments in the social sciences.
Prerequisite: Psychology 101 and 230 or Sociology 101.
3 Lect Hrs 3 Credits
Mr. Kramer

333 Group Dynamics
An examination of small group behavior from a theoretical and empirical perspective. The group is viewed as a system functioning in a number of environments — physical, personal, social, and task. Each of these interrelated environments influence various aspects of group process. Thus leadership, power, conformity, status, goals, etc., are considered as interrelated processes of social interaction.
Prerequisite: Psychology 101 and 230.
3 Lect Hrs 3 Credits
Mr. Mixon, Ms. Liem

334 Seminar in Role Playing
An examination of conceptual, descriptive, and empirical uses of the concept 'role' in behavior analysis (role theory, dramaturgical analysis) and conscious uses of role playing in the theatre, psychotherapy, education, research, and everyday life.
Prerequisite: Psychology 101 and 230.
3 Lect Hrs 3 Credits
Mr. Mixon

340 Representational Development
Primarily concerned with symbol formation in child art and child play, and organized in the form of a seminar consisting of lectures, discussions and student presentations. The main area of study will be child art, pretense play and fantasy, imitative actions and copying, with some exploration of the role of fairytales in early childhood.
Prerequisite: Psychology 101 and 241.
3 Lect Hrs 3 Credits
Ms. Golomb

341 The Family and the Child — A Psychological View
The role of the family in psychological development of the child. A psychodynamic view of the family, to examine stages of development from the third trimester of pregnancy to sixteen years of age.
Prerequisite: Psychology 101 and 240 or 241 and 242.
3 Lect Hrs 3 Credits
Mr. Schleifer, Ms. Liem

343 Field Study in Aging
Integrates theories and empirical findings in aging with practical field experience. Students spend 4 hours per week in field placement with the elderly; two class meetings weekly devoted to discussion of field experiences and assigned readings on theory and research.
Prerequisite: Psychology 240 or 243 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Mishara

350 Cognitive Psychology
An exploration of how man develops strategies for obtaining information from his environment, and how this information is organized, stored, and retrieved for later use.
Prerequisite: Psychology 101 and 250 or 255.
3 Lect Hrs 3 Credits
Mr. Schwartz

351 Laboratory in Cognitive Psychology
Experiments on a variety of higher processes involving human subjects.
Prerequisite: Psychology 350.
3 Lab Hrs 3 Credits
Staff

355 Sensory Processes and Pattern Recognition
This course will explore the means by which a

perceived, remembered and thought about world comes into being from changes in the energy distribution on the retina and fluctuating pressure patterns at the ear; how these become the images that we see and the sounds, speech and music that we hear.
Prerequisite: Psychology 101.
3 Lect Hrs 3 Credits
Staff

360 Neuropsychology of Higher Cognitive Processes I
The neural basis of higher cognitive functions such as perception, language and memory, including a consideration of human brain damage and psychological tests used to assess such damage.
Prerequisite: Psychology 101 and 260.
3 Lect Hrs 3 Credits
Mr. Butters

361 Neuropsychology of Higher Cognitive Processes II
A continuation of Psych 360, with emphasis on the neural basis of memory and attention to both animals and humans. The course will focus on the structure and functions of the hippocampus and reticular formation.
Prerequisite: Psychology 101, 260 and 360 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Samuels

362 Psychopharmacology
Survey of background and history of psychoactive drugs, their current uses as research and therapeutic tools, and the difficulties in appraising their effects. Particular attention will be given the effects of drugs on development of new fields of inquiry such as neuropsychopharmacology and influences on older fields such as biological psychiatry, etc.
Prerequisite: Psychology 101 and 260.
3 Lect Hrs 3 Credits
Mr. Krus

363 Man's Emotional Brain
The course will center about the study of possible relationships between 'emotional disturbance' and central nervous system (CNS) dysfunction. It will proceed from a brief overview of CNS organization and description of some major 'emotional disorders' to a directed discussion of how the study of these two seemingly independent bodies of knowledge can be profitably linked. We will be dealing with the borderlands of abnormal and physiological psychology where there is much room for speculation and discovery.
Prerequisite: Psychology 101, 200, 215 and 260 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. McIntyre

415 Normality and Psychopathology in Childhood
An advanced course in developmental psychology and psychopathology. Deals mainly with early childhood and emphasizes Anna Freud's views as they evolved from experience in the psychoanalysis of children. Specific topics include temporary regression in childhood, the transitional object, consciousness in childhood, the influence of physical illness and hospitalization on mental development, object loss, the diagnostic profile, and the concept of the representational world.
Prerequisite: Psychology 101, 200 and 220, and 240 or 241.
3 Lect Hrs 3 Credits
Mr. Rosenblatt, Mr. Schleifer

425 Freud: Case Histories
Wolfman, Schreber, Little Hans. Special attention to the problems of the case history as scientific evidence.
Prerequisite: Psychology 101, 200 and 215 or 220, and 240 or 241.
3 Lect Hrs 3 Credits
Mr. Rosenblatt

442 Field Course in Early Child Development
This course is designed as a field laboratory course and fulfills two distinct functions: (A) It exposes the student to children in a naturalistic setting (nursery school or day-care setting) and trains him/her in the role of teaching assistant or early childhood caretaker; (B) it trains the student in research methods and techniques of data collection relevant to issues in child development. This involves the study of selected problems, search of the literature, formulation of hypotheses, design of observational and experimental studies, data collection and analysis, and the writing of research reports.
Prerequisite: Psychology 101, 102, or 270, and 240 or 214.
7 Hrs 4 Credits
Ms. Golomb

445 Advanced Seminar in Developmental Psychology
Role of parents in promoting growth of children with intellectual, physical, emotional and perceptual disabilities. A review of theory and research with an examination of implications for rehabilitation.
Prerequisite: Psychology 101 and 240 or 241 and 242.
3 Lect Hrs 3 Credits
Mr. Schleifer

465 Psychobiology of Development
Problems in behavioral development will be explored from an evolutionary perspective. A major emphasis of the course will be the formulation of general principles of development applicable to a wide variety of species. A second emphasis will be placed on interpreting. The relation of the animal literature to an understanding of human development. Specific topics will be drawn from naturalistic studies of animal and human development and from studies exploring the relation between biology and behavioral development.
Prerequisite: Psychology 101 and 240 or 241 and 260 or 265 of instructor.
3 Lect Hrs 3 Credits
Ms. Moore

480 Systems of Psychology
A study of major trends in contemporary psychology, with particular emphasis on behavioristic and phenomenological viewpoints. An examination of the leading movements is based on historical evaluation of the classical systems and major concepts.
Prerequisite: Psychology 101. For senior Psych majors only.
3 Lect Hrs 3 Credits
Ms. Ross

481 Field Course in Early Child Development
Designed as a field-laboratory course. Students work four hours per week in an approved cooperating institution, and meet once a week for a three hour period of academic coursework. Coursework consists of the selection of suitable research topics. Discussion of the relevant literature and of methods of inquiry, the formulation of hypotheses, the collection of data, the analysis and interpretation of the results, and finally the writing of research reports.
Prerequisite: Psychology 101, 102 or 270 and 241 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Golomb

485 Humanistic Pyschology
An examination of the historical roots of the contemporary writers in existential and humanistic psychology. Studies on human health, growth, neurosis, and self-actualization will be emphasized.

rerequisite: Psychology 101, 240 or 241 and 00 or 230.
Lect Hrs 3 Credits
Is. Golomb

88 Problems in Psychology I
ndependent work on special problems or in ertain fields of psychological interest. Stuents must arrange with an individual instructor nd have project approved by the department.
rerequisite: Psychology 101.
Irs by Arrangement 1-4 Credits
taff

89 Problems in Psychology II
ndependent work on special problems or in ertain fields of psychological interest. Stuents must arrange with an individual instructor nd have project approved by the department.
rerequisite: Psychology 101.
Irs by Arrangement 1-4 Credits
taff

90 Special Topics in Psychology
Conducted by various members of the faculty ith special attention in their fields of scholarly nterest. Topics vary by semester.
rerequisite: Psychology 101.
Lect Hrs 3 Credits
taff

92 Issues for Psychology
uest lecturers will discuss new developments nterior to psychology as a science or exterior as roblems for psychological analysis.
rerequisite: Psychology 101, Juniors and eniors only.
Lect Hrs 3 Credits
Ir. Kramer

95 Advanced Seminar in Psychology
eminar topics vary by semester.
rerequisite: Senior standing and permission of nstructor.
Lect Hrs 3 Credits
taff

96 Honors Research
ndependent study, research write up and deense of thesis.
rerequisite: Psychology 499.
Irs by Arrangement 3 Credits
taff

97 Honors Research
ndependent study, research write up and deense of thesis.
rerequisite: Psychology 499.
Irs by Arrangement 3 Credits
taff

498 Senior Honors Seminar I
An intensive program of directed research combined with weekly prerequisite: Psychology 101, 211, 212. A 3.0 grade point average and consent of psychology honors committee.
Staff 3 Credits

499 Senior Honors Seminar II
An intensive program of directed research combined with weekly.
Prerequisite: Psychology 498.
3 Lect Hrs 3 Credits
Staff

RELIGIOUS STUDIES

109 Introduction to Religion — Symbol, Myth and Ritual
A comparative introductory and survey course on fundamental subject matter and methods of approach, focusing on the central importance of symbols, myths and rituals. Concentration on such topics as: mythopoeic religion, myth and history, heroes and saviors, mystical transformation, prophetic vision, and contemporary spiritual transcendence.
3 Lect Hrs 4 Credits
Mr. Horsley

122 Introduction to Religion: Varieties of Religious Experience
An introductory and survey course in the study of religion, concentrating on certain figures and movements from the major world religious traditions, and using psychological, sociological and theological - philosophical approaches. Readings such as the *Gilgamesh Epic*, Augustine's *Confessions*, Gandhi's autobiography, Hasidic stories, Zen Koans, Sufi tales, as well as contemporary writings.
3 Lect Hrs 4 Credits
Staff

133 From Fertility Cult to Philosophy
A survey of religious development prior to the present major religions. Emphasis will be on the development from fertility cult to religious philosophy, *The Mother Goddess* and *The Sky God*, to syncretism in the complex system of temple and kingship, and the beginnings of personalized religious speculation. Readings from extant hymns and myths of ancient Egypt, Babylon, India, Greece, Persia and China, as well as selected standard works of the period.
3 Lect Hrs 4 Credits
Ms. Waghorne

231 Religions of India
A study of Indian Hindu, Buddhist and other religious forms as expressed in myth, literature, art, and social movements. Equal attention to traditional material such as the *Upanishads*, the *Bhavaged Gita*, and Buddha, and to recent figures and movements such as Gandhi.
3 Lect Hrs 3 Credits
Ms. Waghorne

232 Religions of the Far East
A study of religious expression in China and Japan with special emphasis on Confucianism, Taoism, Buddhism and Shinto.
3 Lect Hrs 3 Credits
Ms. Waghorne

241 Old Testament, the Religion of Israel and the Ancient Near East
Interpretation of the religion and literature of ancient Israel in comparison with the mythic religious forms of the ancient Near East with some attention to subsequent Biblical interpretation, literature and philosophy. Central themes include myth and history, covenant, charismatic leadership, imperial religion, prophetic protest and apocalyptic visions.
3 Lect Hrs 3 Credits
Mr. Horsley

242 New Testament, Judaism and Hellenistic Religion
A study of religion and literature of early Christianity in comparison with other, contemporary Jewish movements — Pharisees, Essenes, etc. — and with Hellenistic philosophy and mystery religions. Concentration on the career and teachings of Jesus of Nazareth, the interpretation of his significance, and the development and diversity of the Christian movement. Some attention to modern literary, musical and cinematic interpretations.
3 Lect Hrs 3 Credits
Mr. Horsley

250 Varieties of Mysticism
A critical and comparative study of specific mystics and mystical movements from the Hindu, Muslim, Jewish and Christian religious traditions.
Prerequisite: One Religious Studies course or permission of instructor.
3 Lect Hrs 3 Credits
Staff

252 Sacred Histories and Myth
A study of the sacred stories of 'Great Men' in the religions of the world, focusing on the ways

in which 'historical' men and events take on a mythological character. The course will concentrate on readings from the Asian high religions, such as *Hindu Tales of Kings*, stories of the Buddha, and legends of Chinese emperors, with some attention to tribal tales of West Africa and the Hebrews.
3 Lect Hrs 3 Credits
Ms. Waghorne

255 Religions of the Oppressed
An examination of the religious life and expressions of subject people, including the relations these have to the programs and ideologies of the oppressors. Concentration on 4 or 5 historical and contemporary movements such as ancient Jewish apocalyptic movements, including Jesus of Nazareth, medieval European millenarian groups, the ghost dance among the American Indians, certain African Liberation movements, Black religion in America and the Women's Liberation Movement.
3 Lect Hrs 3 Credits
Mr. Horsley

264 Contemporary Religious Thought
Consideration of major currents in contemporary religious thought from existentialist theology and mystical contemplation to more socially oriented reflection and religious philosophies of nonviolence and revolution. Readings from Buber, Tillich, Weil, Teilhard, Merton, Niebuhr, Gandhi, Fackenheim, Berrigan, Cox, and Daly.
3 Lect Hrs 3 Credits
Mr. Horsley

273 Problems in Religion and Ethics
Consideration of certain religious-ethical perspectives on a few key social issues such as medical ethics, racial and sexual oppression, poverty, and violence. Concentration on 3 or 4 different positions such as those of Cox, Daly, Heschel, King, Niebuhr, Vatican II and Third-World Catholic figures.
3 Lect Hrs 3 Credits
Mr. Horsley

276 Religion and Technology
An assessment of technology, including issues such as ecology, alienation, medicine, and warfare, from the perspective of major religious traditions. A consideration of religious-ethical resources for dealing with technology and its impact on man and nature. Special attention may be given to one or two paradogmatic problems; for example, in genetics or medical ethics.
3 Lect Hrs 3 Credits
Staff

478 Independent Study I
Open only to a very limited number of students in any one semester. A written prospectus must be formulated with the instructor.
Prerequisite: Permission of instructor and program chairperson
3 Lect Hrs 3 Credits
Staff

479 Independent Study II
Open only to a very limited number of students in any one semester. A written prospectus must be formulated with the instructor.
Prerequisite: Permission of instructor and program chairperson.
3 Lect Hrs 3 Credits
Staff

480 Special Topics Seminar
Intensive study of special topics, varying each year. Enrollment will be limited.
Prerequisite: Junior standing and permission of instructor.
3 Lect Hrs 3 Credits
Staff

RUSSIAN

Faculty

Anny Newman, Assistant Professor, Chairperson; Associate Professor George Siegel; Assistant Professor Diana Burgin; Lecturer Maya Berlina

Requirements for Graduation

Ten courses in the department beyond the intermediate level, which must include Russian 309-310 (Third Year Russian), Russian 261-262, (Russian Literature in Translation), two semesters of Russian Literature in the original, either Russian 305 (Phonetics) or Russian 306 (Structure of Modern Russian), Russian 263 (Russian Culture and Civilization) or History 344 (Literature and History-Russia 1825-1917), and Russian 311-313 (Stylistics — Fourth Year Russian).

Honors Program

For graduation with honors in Russian, students must have a 3.0 cumulative average at the end of their senior year. They must petition by the mid-term of their penultimate semester to the department to be allowed to write an honors paper in Independent Study. Honors will be awarded on the basis of 1) their overall performance in their major courses and 2) their work in Independent Study.

101 Elementary Russian I
For students with no previous training in Ru sian. Development of the four language skil based on an audio-lingual approach.
4 Lect Hrs, 2 Lab Hrs 4 Cred
Staff

102 Elementary Russian II
A continuation of Russian 101. For studer with no previous training in Russian. D velopment of the four language skills, based an audio-lingual approach.
4 Lect Hrs, 2 Lab Hrs 4 Cred
Staff

201 Intermediate Russian I
Intensive review of grammar. Continued pra tice in speaking, writing and listening.
Prerequisite: Russian 102 or equivalent.
4 Lect Hrs 4 Cred
Staff

202 Intermediate Russian II
A continuation of Russian 201. Intensive r view of grammar. Continued practice in spea ing, writing and listening.
Prerequisite: Russian 102 or equivalent.
4 Lect Hrs 4 Cred
Staff

203 Russian Conversation and Composition
Intensive practice in Russian conversation a composition.
Prerequisite: Russian 102.
2 Lect Hrs 2-3 Cred
Staff

204 Russian Conversation and Composition
Continuation of Russian 203. Intensive pra tice in Russian conversation and compositio
Prerequisite: Russian 203.
2 Lect Hrs 2-3 Cred
Staff

250 Dostoevsky
Historical and literary background. No readi knowledge of Russian required. Russi majors expected to do a part of the reading the original.
3 Lect Hrs 4 Cred
Mr. Siegel, Ms. Burgin

51 Tolstoy
istorical and literary background. No reading nowledge of Russian required. Russian ajors expected to do a part of the reading in e original.
Lect Hrs 4 Credits
r. Siegel

61 Russian Literature in Translation
odern Russian literature, concentrating on ose from Pushkin to Dostoevsky. No reading nowledge of Russian required.
Lect Hrs 4 Credits
r. Siegel, Ms. Burgin

62 Russian Literature in Translation
odern Russian literature, concentrating on ose from mid 19th century to 1917. No read- g knowledge of Russian required.
Lect Hrs 4 Credits
r. Siegel, Ms. Burgin

63 Russian Culture and Civilization
spects of Russian history, religion, literature, lklore, art, architecture, and music studied in lation to one another rather than in isolation. ithin the general framework, students are en- uraged to pursue topics of individual interest. erequisite: Sophomore standing, or permis- on of instructor.
Lect Hrs 4 Credits
s. Burgin

64 Bulgakov, Pasternak and Solzhenitsyn
eadings in English translation of selected ovels and short stories of three major Soviet riters.
erequisite: Sophomore standing.
Lect Hrs 4 Credits
s. Burgin

65 Chekhov
eadings of selected plays and short stories of hekhov in English translation.
Lect Hrs 4 Credits
r. Siegel

67 Soviet Literature
eginnings and development of Soviet prose, ama and criticism from Gorky to the present. o reading knowledge of Russian required. ajors required to do research in Russian.
Lect Hrs 4 Credits
r. Siegel, Ms. Burgin

68 Russian Drama
ne masterpieces of the Russian theatre from e beginnings to recent years. Plays from Fonvizin to Gorky. No reading knowledge of Russian required. Majors expected to do a part of the reading in the original.
Prerequisite: Sophomore standing.
3 Lect Hrs 4 Credits
Ms. Burgin

269 Short Masterpieces of Russian Literature
Reading in English translation of short stories and short novels of nineteenth and twentieth century Russian writers. No reading knowledge of Russian required.
Prerequisite: Sophomore standing.
3 Lect Hrs 4 Credits
Mr. Siegal

301 Selected Readings in Russian Literature
Reading of selected classics of 19th and 20th century Russian literature, combined with written and oral work.
Prerequisite: Russian 201 or equivalent.
3 Lect Hrs 3 Credits
Staff

302 Selected Readings in Russian Literature
Reading of selected classics of 19th and 20th century Russian literature, combined with written and oral work.
Prerequisite: Russian 201 or equivalent.
3 Lect Hrs 3 Credits
Staff

303 Russian Conversation and Composition
Intensive practice in Russian conversation and composition.
Prerequisite: Russian 202.
2-3 Lect Hrs 2-3 Credits
Staff

304 Russian Conversation and Composition
Continuation of Russian 303. Intensive practice in Russian conversation and composition.
Prerequisite: Russian 303.
2-3 Lect Hrs 2-3 Credits
Staff

305 The Sound Patterns of Russian
Detailed analysis of the sound system, articulation and intonational patterns of the Russian language. Emphasis on aural comprehension and oral fluency.
Prerequisite: Russian 201 or equivalent.
3 Lect Hrs 3 Credits
Ms. Newman

306 Structure of the Russian Language
The structure of the contemporary Russian language. Morphology, accentology and syntax.
Prerequisite: Russian 201 or equivalent.
3 Lect Hrs 3 Credits
Ms. Newman

309 Third Year Russian I
Reading, problems in grammar, composition and conversation.
Prerequisite: Intermediate Russian or equivalent.
3 Lect Hrs 3 Credits
Ms. Newman

310 Third Year Russian II
A continuation of Russian 309. Reading, problems in grammar, composition and conversation.
Prerequisite: Intermediate Russian or equivalent.
3 Lect Hrs 3 Credits
Ms. Newman

311 Russian Stylistics
The style of Russian literary works. Practical application of principles of grammar and intensive study of idiomatic expressions.
Prerequisite: Russian 202 or equivalent.
3 Lect Hrs 3 Credits
Staff

312 Russian Stylistics
A continuation of Russian 311. The style of Russian literary works. Practical application of principles of grammar and intensive study of idiomatic expressions.
Prerequisite: Russian 311 or equivalent.
3 Lect Hrs 3 Credits
Staff

321 Specialized Reading
Texts in various fields read intensively and extensively — primarily for vocabulary acquisition.
Prerequisite: Russian 201 or equivalent.
3 Lect Hrs 3 Credits
Ms. Newman

341 19th Century Russian Poetry
Readings in Lermontov, Tjutchev and Nekrasov.
Prerequisite: Russian 201 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Burgin, Mr. Siegel

344 Pushkin
Readings in the poetry and prose of Pushkin.

Prerequisite: Russian 201 (or 2 years of Russian).
3 Lect Hrs 3 Credits
Ms. Burgin, Mr. Siegel

359 20th Century Russian Poetry
Close reading and analysis of the Russian texts of poems of Mayakovsky, Voznesensky and Evtushenko.
Prerequisite: Sophomore standing.
3 Lect Hrs 3 Credits
Staff

403 Russian Conversation and Composition
Intensive practice in Russian conversation and composition.
Prerequisite: Russian 310.
2-3 Lect Hrs 2-3 Credits
Staff

404 Russian Conversation and Composition
Continuation of Russian 403. Intensive practice in Russian conversation and composition.
Prerequisite: Russian 403.
2-3 Lect Hrs 2-3 Credits
Staff

478 Independent Study I
Selected research topics organized in consultation with individual students or individual guidance in reading, writing, and literary criticism.
Prerequisite: Permission of instructor or chairperson.
Weekly Conferences,
Hrs to be Arranged 3 Credits
Staff

479 Independent Study II
Selected research topics organized in consultation with individual students or individual guidance in reading, writing, and literary criticism.
Prerequisite: Permission of instructor or chairperson.
Weekly Conferences,
Hrs to be Arranged 3 Credits
Staff

481 Special Topics
Study of special topics, varying each semester according to the instructor.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

482 Special Topics
Study of special topics, varying each semester according to the instructor.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

586 Curriculum and Methods Student Teaching — Russian
Prerequisite: 6 hours education courses and admission to the Teacher Certification Program.
3 Lect Hrs, 20 Lab Hrs
(Practice Teaching) 9 Credits
Staff

SOCIOLOGY

Faculty

T. Scott Miyakawa, Professor, Chairperson; Professors James E. Blackwell, Calvin Larson, Richard Robbins, Daisy Tagliacozzo, Robert Weiss, Gordon C. Zahn; Associate Professors Harry Brill, John Dickinson, Gerald R. Garrett, Siamak Movahedi, Sharon Stichter; Assistant Professors James Brady, Susan Gore, Glenn Jacobs, Herman James, Gregory Johnson, Lawrence Kamara, Janet Kohen, Richard Kronish, Stan R. Nikkel, Ellen Richards, Robert E. Wood; Part-time Lecturers Louis Brin, Barbara Pearson, Joanne Preston.

Requirements for Graduation

The department requires a total of 27 semester hours of Sociology credit for a major in Sociology. For the former College I students, the specific requirements are Sociology 101 (Introductory Sociology), Sociology 241 (Elements of Sociological Theory), and either Sociology 351 (Methods of Sociological Research) or Sociology 350 (Social Statistics). In addition, majors must take six upper division courses in Sociology in meeting the total of at least 27 credit hours required for a Sociology major. Former College I majors are encouraged, though not required to take Anthropology 101 (Introductory Anthropology) and Psychology 101 (Introductory Psychology).

Former College II majors are required to take a minimum of nine Sociology courses, including Sociology 101 (Introductory Sociology), Sociology 241 (Elements of Sociological Theory), and Sociology 351 (Methods of Social Research). They may substitute other methods courses, including Sociology 451 (Field Work Methods), for Sociology 351. Former College II majors are also required t take two courses in any other social science an are encouraged to choose related subjects in th social sciences. Students may submit up to tw cognate courses in other social sciences to b counted toward the major.

At the invitation of the Department, studen may take individual directed study with em phasis on independent research. Students wish ing to engage in independent study shoul submit a proposal for Departmental considera tion.

Sociology and Urban Social Service

The Sociology and Urban Social Servic concentration is designed for dedicated stu dents who wish, beginning in their sophomor year, to major in Sociology as preparation for youth-and-family servicing career in an urba setting.

Besides courses of interest to them, studen in this program take specially created sectior of the sociology course offerings which coord nate their course work with field placeme activity. Such students are expected to intern a variety of social service agencies such schools, hospitals, child guidance center housing services, family support, and oth community agencies.

Freshmen interested in applying for th Urban Social Service Concentration shou consult with the departmental SUSS advisor

Field Training

Field Training is provided in two prograr of the department: (1) The Sociology ar Urban Social Service Program (SUSS) and (the Program in Corrections. These prograr involve practice training in an agency settin following the acquisition of the theoretic knowledge.

101 Introduction to Sociology
The structure of society, cultural patterns, ar group life. The individual and socializatio groups, institutions, social systems, soci change.
3 Lect Hrs 4 Cred
Staff

102 Further Topics in Introductory Sociology
A continuation of introductory sociology f second semester freshmen in the SUSS pr gram, focusing on the social processes of c viance, change and conflict.

Prerequisite: Sociology 101 and participation in SUSS program.
3 Lect Hrs 3 Credits
Staff

160 Social Problems and Social Policy
Course concentrating on institutional formation and change. Specifically, it will cover the definition and explanation of social problems, individual, group and governmental responses to them, implications of social policy, in-depth case studies and discussion of contemporary social problems.
Prerequisite: Introductory Sociology.
3 Lect Hrs 3 Credits
Mr. Blackwell, Ms. Richards

200 Human Service Organizations
Theory and practice of people-processing and people-changing, interpersonal behavior and group development through observation of the group itself and readings from psychology, anthropology and sociology.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Fliegel, Ms. Tagliacozzo

201 Youth and Society
An examination of theories and research on youth and society. Present day patterns of youthful development will be contrasted to other types — both in Western history and in other cultures. The relationship of youth to major institutions (educational, legal, occupational) will be examined in detail.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Johnson

211 The Urban Community
The development of the city as a complex form of the human community. History and growth of urbanism in industrial societies and developing nations. Urban change and the problem of planning.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Larson, Mr. Nikkel, Mr. Brill

220 A Survey of Asian Societies —China and Japan
This course is an introductory study of the institution and structures of East Asian societies, especially of China and Japan. It will concentrate on selected traditional institutions such as the family, community, and social aspects of the economy and their relations to modernization and industrialization. Comparisons will be made between these East Asian societies and the United States.
Prerequisite: Introductory Sociology.
3 Lect Hrs 3 Credits
Mr. Miyakawa

221 Asian Minorities in America
An introduction to the Asian Americans and their major contributions to the United States; analyses of their experience, including aspects significant to a better understanding of American group relations generally, such as those between blacks and caucasians and among white ethnics.
Prerequisite: Introductory Sociology.
3 Lect Hrs 3 Credits
Mr. Miyakawa

226 Politics and Sociology of Ecology
Political processes as general phenomena occurring in all social and political institutions, considered through ideas derived from the study of political behavior, organization theory and political anthropology and evaluated in terms of normative political philosophy.
Prerequisite: Introductory Sociology.
3 Lect Hrs 3 Credits
Staff

231 Social Stratification
Social classes in traditional and industrial societies, classes, castes, and mobility. Theories of class relationships and conflicts.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Wood

232 Sociology of Work
Deals with a variety of social issues associated with the division of labor: the structure of occupations and their impact upon workers, sources of satisfaction in work, experiments in redesigning work, and models of workers' participation in the work place.
3 Lect Hrs 3 Credits
Mr. Brill, Staff

241 Elements of Sociological Theory
Reading and discussion of basic sociological works in theory. Relevance of earlier and contemporary sociological interests and research.
Prerequisite: Sociology 101 and Junior standing.
3 Lect Hrs 3 Credits
Staff

242 Family
A comparative and historical analysis of family systems. Emphasis on the development and future prospects of the nuclear family in middle-class industrial society.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Dickinson, Mr. Kamara, Ms. Richards

261 Social Deviance and Control
The social conditions of individual and group behavior disorders, deviant subcultures and social control.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Garrett, Mr. Kronish

271 Theory of Social Change
Alternative theories of social change, at the societal and community levels. Classical theories of change, including Durkheim, Weber, and Marx, and contemporary theories. Selected applications.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Wood, Ms. Stichter

272 Collective Behavior
The nature and form of religious, ethnic, racial and other types of groupings,mass society and masses in society, formation and structure of crowds.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Staff

277 Social Interaction in Groups
The dynamics of face-to-face social integration in the context of groups. Investigation of the application of small group research and theory to the functioning of natural groups. Attention to the formative and affective subsystems, role differentiation and decision processes in formal organization.
Prerequisite: Introductory Sociology.
3 Lect Hrs 3 Credits
Staff

281 Society and the Individual
Basic survey of the social environment of individuals.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Ms. Kohen, Mr. Weiss, Ms. Richards

285 Work in Bureaucracies
Deals with the internal dynamics of complex organizations. Different approaches to organizational behavior will be examined in the context of social values and beliefs. Analysis will include the impact of hierarchy on work experi-

ence, the psychological bases for organizational effectiveness, the foundations and uses of power, the problems of leadership in bureaucracies, and the effects of organizational structures on communication and innovation.
Prerequisite: Sociology 101 or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Tagliacozzo, Staff

300 Communications and Opinion
Sociological and political perspectives on mass communications.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Johnson

321 Racial and Ethnic Relations
Conflicts and accommodations among differing racial and ethnic groups. Nature and character of prejudices and discrimination. Minority-majority relations in selected societies.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Blackwell, Mr. Robbins, Mr. Jacobs

322 The Black Family
A socio-historical analysis of the experiences of the black family in the United States from slavery to present. Emphasis will be on the mode of adjustment and adaption to the forces of domestic colonialism including slavery, racism, and economic discrimination. It will also focus on stratification in the black community as well as issues in socialization and personality development.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Staff

330 Sociology of the Future
Futurism — the study of our rapidly changing technological and social environment and examination of the theories and techniques by which the future can be forecasted, predicted, anticipated or planned.
Prerequisite: Sociology 101 and 2 upper-level sociology courses.
3 Lect Hrs 3 Credits
Staff

333 Sociology of Religion
Belief systems and social structures of religious groups. Impact of religious systems on familial, economic, political and other institutions.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Miyakawa, Mr. Zahn

335 Political Sociology
An interdisciplinary study with stress on the nature of power and its distribution in society. Alternative approaches to changing and transforming power structures.
Prerequisite: Sociology 101 and Political Science 122
3 Lect Hrs 3 Credits
Ms. Stichter, Mr. Wood

337 The Sociology and Psychology of Complex Organizations
Types of organizational structures both historically and in industrial societies. Profit making and non-profit making organizations such as schools, business and public bureaucracies, corporations, churches, hospitals, prisons.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Ms. Tagliacozzo

338 Sociology of Education
The educational systems of various types of Western and non-Western societies and the changes in Western systems in modern history, with particular reference to the U.S. the structural features of types of American schools and colleges and the relevance of these features to the economy and the ideology.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Ms. Tagliacozzo, Mr. Robbins

342 Aging and Society
An examination of theories and research of aging and society. Course is organized in two sections. The first section explores the general relationship of the aging process and the aged to the social, economic and political systems in a youth-oriented and work-oriented society. The second section draws upon cross-national and cross-cultural material.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Kamara

350 Elements of Social Statistics
Fundamentals of social statistics, special emphasis on probability, tests of significance, and measures of association.
Prerequisite: Sociology 101 and 6 hours of upper division sociology, Junior-Senior standing or permission of instructor.
3 Lect Hrs, 1 Lab Hr 4 Credits
Mr. Movahedi, Mr. James

351 Methods of Sociological Research
Design of sociological research and methods of inquiry. Organization and analysis of data, development of research projects.
Prerequisite: Sociology 101 and Junior standing.
3 Lect Hrs 3 Credits
Mr. Movahedi, Staff

355 Comparative Social Structures
The comparative study of large-scale social systems with emphasis on national societies. The theory and methodology of comparison and comparisons of major features of social systems. Construction of typologies.
Prerequisite: Sociology 101 and Junior standing.
3 Lect Hrs 3 Credits
Ms. Stichter, Staff

361 Criminology
A general survey and analysis of adult crime. Attention to historical development of criminological thought, societal reaction to crime and behavioral systems. Emphasis on theories of criminality and issues in the administration of justice by police and courts.
Prerequisite: Sociology 101 and Junior-Senior standing.
3 Lect Hrs 3 Credits
Mr. Brown, Mr. Garrett

365 The Professions in Contemporary Society
An examination of the concepts and theories which have been brought to bear on the study of contemporary professions. Students will examine the historical matrix of modern professionalism, and the sources of power and vulnerability of professions in industrial society. The conditions which differentiate the experience and organizations of different professions will be studied, including practitioner-client relationships, patterns of peer control, and the varied roles of professional authority in complex organizations. Class and written reports focus on comprehensive studies of specific professions.
Prerequisite: Sociology 101 and Junior standing or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Tagliacozzo, Staff

373 Population and Ecology
The population explosion, birth, death, and illness. Immigration and emigration. How the human and physical environment interact. Questionnaire construction, interviewing, and data analysis.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Mr. Dickinson

375 Survey Research Methods
The design of the course is learning by doing. Each student will participate in the development, conceptualization, sampling, of an aspect of a central theme of the course, such as changing parental roles. Within this broad area students will develop their own area of inquiry. There will be a mid-term examination and a final project paper.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Staff

377 Laboratory in Group Processes and Interpersonal Communication
The purpose of this course is to provide students with a learning experience in small group development through participation and analysis of outgoing group processes and interpersonal interactions within a laboratory setting. This learning will be partially experimental and partly through lectures, discussions, readings, and papers. The aim is not only intellectual knowledge; developing skills in decision making, problem analysis, problem solving and leadership will also be stressed.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Staff

382 Social Psychology of Sex Roles — Men and Women in Society
An analysis of male and female roles in society with consideration of biological and psychological factors. Attention to socialization processes which reflect society's functional definition of acceptable and deviant sex roles.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Ms. Kohen, Ms. Gore

384 Medical Sociology
Focuses on the contribution of the social sciences to the field of medical care. This is done along two dimensions — 1. Illness and treatment are defined from a socio-cultural, biological perspective. 2. Sociological theories and studies are then brought to bear on the problems of definitions of illness, illness behavior, the use of medical services, the organization of medical services and the future frontiers of social science in medicine.
Prerequisite: Sociology 101 and one additional sociology course.
3 Lect Hrs 3 Credits
Staff

385 Hospitals
Approaches to the study of complex organizations are examined through a focus on the general hospital. The analysis will include: trends in external and internal patterns of social control, distinguishing organizational features of the hospital; the role of professionals and managers in the context of work technology and work organization: interactions between professionals and clients and the management of patient care under varying conditions.
Prerequisite: Introductory Sociology and Medical Sociology or Human Service Organizations or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Tagliacozzo

411 Community Organization
Major principles and concepts of community organization will be explored. Particular emphasis will be placed on considering the potentialities and limits of various types of community organizations to achieve social change in urban neighborhoods.
Prerequisite: Sociology 101 — Junior or Senior standing.
3 Lect Hrs 3 Credits
Staff

421 Minorities and Housing
It is the purpose of this course to explore the relation of urban housing and the location of minorities within the structure of American society. Specifically, it will focus upon the processes involved in matching people and housing, the techniques and processes involved in limiting housing opportunities for some people, minority status and housing opportunity, the effects of differential housing opportunities, and proposed resolutions and corrective measures for rearranging the distribution of housing.
Prerequisite: Sociology 101, 211 and Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Nikkel

427 Minority Role Behavior
A sociological analysis of the various responses, self-definitions and behavior patterns developed by minority groups to their status as minorities, with special emphasis on the United States.
Prerequisite: Sociology 101 and Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Blackwell

440 Sociology of Knowledge and Ignorance
Epistemological sociology — social determinants of the gap between reality and our knowledge of it.
Prerequisite: Sociology 101 and Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Dickinson

441 Contemporary Sociological Theory
A concentrated examination of recent developments in the study of human interaction and the problems of social order and social change. Issues involving the goals of sociology, the ethics of social research, and behavior control will be a major focus.
Prerequisite: Senior standing, Sociology 241 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Larson

450 Evaluation Research
The application of research methods to the evaluation of social programs. The course assumes knowledge of basic research methods and will use examples from the fields of corrections, health systems, and urban affairs.
Prerequisite: Sociology 101, 350, 351 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

451 Field Work Methods
Intensive training in observational methods, readings of theoretical issues involved, concentrated community oriented field work under close supervision.
Prerequisite: Introductory Sociology and Junior/Senior standing.
3 Lect Hrs 3 Credits
Staff

452 Nonexperimental Methods in Sociology
Design and analysis of nonexperimental research. Includes construction of indices and scales, methods of control in survey research, multivariate analysis of qualitative and quantitative data, analysis of causal models and computer application to sociological data.
Prerequisite: Senior standing, Sociology 350 and 351 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Movahedi

462 Juvenile Delinquency
The nature and extent of delinquency, explaining theories, delinquent subculture, and pro-

grams for control and prevention.
Prerequisite: Junior standing and Sociology 101.
3 Lect Hrs 3 Credits
Mr. Blackwell, Mr. Garrett

463 Corrections
Prisons, jails, parole, and probation. Attention to inmate social structure, philosophy underlying correctional system and modern treatment approaches.
Prerequisite: Junior standing and Sociology 462.
3 Lect Hrs 3 Credits
Mr. Brin, Mr. Garrett

464 Practicum in Correction
Supervised field placement in a correctional setting, seminar on problems relating to students field experience and on special issues in correction including prison reform and legislation. Legal handling of adult and juvenile offenders, prison administration and organization.
Prerequisite: Sociology 101, 463 and permission of instructor.
3 Lect Hrs 6 Credits
Mr. Brin, Mr. Garrett

465 Police in Society
An examination of police as a system of social control, survey of major studies of police by sociologists and government commissions. Emphasis placed on police organization, patterns and consequences of police training, historical and cross-cultural perspectives of police systems and studies of police discretion and police-citizen interaction.
Prerequisite: Senior standing, Sociology 101 and 9 credit hours in Sociology.
3 Lect Hrs 3 Credits
Mr. Garrett

466 Research Studies in the Sociology of Alcoholism
An in-depth analysis of sociological factors related to drinking behavior, alcoholism, and treatment and prevention programs. Special emphasis placed on theory, research studies and methodological problems in studying alcoholic populations. Attention also given to special topics — alcohol and crime, traffic safety, family crises, industry and skid row.
Prerequisite: Sociology 101, Senior standing, and permission of instructor.
3 Lect Hrs 3 Credits
Mr. Garrett

467 Sociology of Law
A general analysis of the social origins and consequences of law and legal process, special emphasis on law as a method of conflict resolution, as a social control structure, and on law and social change. Attention also given to law in other societies, including nonliterate societies, to the evolution and development of legal structures, and to patterns of due process and criminal law.
Prerequisite: Sociology 101 and 6 semester credits in Sociology, Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Johnson

468 Social Psychiatry
Sociological analysis of psychiatric theories and practices, examination of the effect of social structure on the manufacture, diagnosis and treatment of mental disorders.
Prerequisite: 3 courses in sociology or psychology, Introductory Sociology, Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Movahedi

471 Modernization
Social and economic aspects of development and modernization in various societies.
Prerequisite: Sociology 101 and Anthropology 101, Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Wood

472 Conflict in Society
An exploration into the nature, sources, types and effects of conflict control and resolution, basically theoretical in approach with emphasis upon conflict as a social process.
Prerequisite: Introductory Sociology and Junior/Senior standing.
3 Lect Hrs 3 Credits
Staff

473 Sociology of Social Movements
Analysis of general characteristics of social movements as a vehicle of social change — with focus on selected historical social movements.
Prerequisite: Introductory Sociology and Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Zahn, Staff

474 Ideology and Social Control in Southern Africa and Latin America
From a comparative perspective, the exercise and structure of power in selected nations, states of Latin America and Southern Africa.
Prerequisite: Introductory Sociology a
Junior/Senior standing.
3 Lect Hrs 3 Credi
Mr. Kamara

475 Socialization
Theories and research on socialization from
sociological-social psychological perspectiv
Emphasis on socialization during childhoo
and continuities and discontinuities betwe
child and adult socialization.
Prerequisite: Introductory Sociology, Socio
ogy 281, and Junior/Senior standing.
3 Lect Hrs 3 Credi
Ms. Kohen

476 Medical Care Systems
This course will pursue a comparative examin
tion and analysis of medical care systems.
general system framework will be used. Th
strategy for analysis will be to analyze vario
systems in terms of the properties of the sy
tems and the interrelations and the interdepe
dencies of the properties. There will be a
tempts to connect the structures and the oper
tions of the systems to the larger societal stru
tures. The focus will be on medical care
modern, industrialized societies.
Prerequisite: Senior standing, three courses
sociology of which two must be Sociology 1
and Sociology 384.
3 Lect Hrs 3 Credi
Staff

478 Directed Study in Sociology
Students invited by the department to condu
independent research during the senior yea
Periodic consultation and guidance provided b
the staff.
Prerequisite: Introductory Sociology, Seni
standing and permission of department.
Hrs by Arrangement 1-4 Credi
Staff

479 Directed Study in Sociology
Students invited by the department to condu
independent research during the senior yea
Periodic consultation and guidance provided b
the staff.
Prerequisite: Introductory Sociology, Seni
standing and permission of department.
Hrs by Arrangement 1-4 Credi
Staff

480 Special Topics
Intensive study of special topics varying ea
year according to instructor.
Prerequisite: Sociology 101.

3 Lect Hrs 3 Credits
Staff

481 Special Topics
Intensive study of special topics varying each year according to instructor.
Prerequisite: Sociology 101.
3 Lect Hrs 3 Credits
Staff

484 Sociology of Health and Healers
Social issues in concepts of health care are explored and sociological research on healers is surveyed. Topics include socialization, professionalism, and organization of a variety of healers.
Prerequisite: Sociology 101, Sociology 384, Junior/Senior standing.
3 Lect Hrs 3 Credits
Staff

485 Seminar on Single Parent Families
A seminar dealing with the single parent family experience from the point of view of both social scientists and of people living in single parent families.
Prerequisite: Introductory Sociology and Junior/Senior standing.
3 Lect Hrs 3 Credits
Mr. Weiss

SPANISH

Faculty
James J. Ryan, Professor, Chairperson; Commonwealth Professor Dorothy Marshall; Professor Ricardo Navas-Ruiz; Associate Professors Maria-Luisa Osorio, Nellie Sanchez-Arce, Adorna Walia; Assistant Professor Clara Estow; Instructor Efrain Barradas; Lecturers Alan Francis, Julian Olivares, Loretta Porto-Slover

Requirements for Graduation

Majors

Majors must earn a minimum of 30 credits in Spanish courses, including the two-semester Survey of Hispanic Literature and Spanish 403, *Don Quixote*. They must also pass seven additional courses at the level of 300 or higher, of which at least two must be in Spanish literature and two in Spanish-American literature.

Spanish majors who are also enrolled in the Latin American Studies Concentration may, with departmental approval, substitute two courses in the Latin American Studies Concentration for two Spanish department courses.

These are minimal requirements. Majors should plan carefully in order to take additional courses which fit their needs and interests. Non-native speakers are advised to take advanced courses in composition, conversation, civilization and culture.

Minors

Minors must earn a minimum of 18 credits in Spanish at the level of 300 or higher, with at least two courses in literature.

Honors

To graduate with departmental honors, majors must attain at least a 3.5 grade point average in major courses and a 3.0 cumulative grade point average, take a departmental comprehensive examination, and write an honors thesis under the supervision of any teaching member of the department.

The comprehensive examination for honor students will be based on material covered in required courses plus that covered in courses taken by the individual examinee.

The honors thesis and the comprehensive examination will be evaluated by a departmental honors committee.

101 Elementary Spanish
For students with no creditable training in Spanish. An intensive study of the four language skills based on an audio-lingual approach.
4 Lect Hrs, 1 Lab Hr 4 Credits
Staff

102 Elementary Spanish
A continuation of Spanish 101. An intensive study of the four language skills based on an audio-lingual approach.
4 Lect Hrs, 1 Lab Hr 4 Credits
Staff

103 Intensive Elementary Spanish
An intensive study of the four language skills for those who wish to do a full year of elementary Spanish in one semester. May be taken for credit by students who have studied two years in high school and wish to start over.
8 Lect Hrs, 2 Lab Hrs 8 Credits
Staff

201 Intermediate Spanish
An oral review and further study of the language skills with readings in Spanish and Spanish-American literature and culture. A student may not receive credit for both 201 and 203.
Prerequisite: Spanish 102 or equivalent.
3 Lect Hrs, 1 Lab Hr 4 Credits
Staff

202 Intermediate Spanish
A continuation of Spanish 201. An oral review and further study of the language skills with readings in Spanish and Spanish-American literature and culture. A student may not receive credit for both Spanish 202 and 204.
Prerequisite: Spanish 201 or equivalent.
3 Lect Hrs, 1 Lab Hrs 4 Credits
Staff

203 Audio-Lingual Intermediate Spanish
Further development of language skills using an audio-lingual approach. A student may not receive credit for both 201 and 203.
Prerequisite: Spanish 102 or equivalent.
4 Lect Hrs 4 Credits
Staff

204 Audio-Lingual Intermediate Spanish
A continuation of Spanish 203. Further development of the language skills using an audio-lingual approach. A student may not receive credit for both 202 and 204.
Prerequisite: Spanish 203 or equivalent.
4 Lect Hrs 4 Credits
Staff

205 Intensive Intermediate Spanish
A continuation of Spanish 103 for those who wish to do a full year of intermediate Spanish in one semester. Students who have passed Spanish 103 will have priority, but the course may be taken by anyone eligible for Spanish 205 if there is room.
Prerequisite: Spanish 102, 103 or equivalent
8 Lect Hrs 8 Credits
Staff

261 Modern Spanish-American Literature in Translation
Works of some of the outstanding Spanish-American writers of the 19th and 20th centuries. No knowledge of Spanish required. Fulfills a requirement for Latin-American Studies Concentration.
3 Lect Hrs 4 Credits
Staff

262 Hispanic Masterpieces in Translation
Major literary works of Spain and Spanish America. No knowledge of Spanish required. No Spanish major credit. This course meets the second year university requirement. Fulfills a

requirement for Latin-American Studies Concentration.
3 Lect Hrs 4 Credits
Staff

263 Hispanic Masterpieces in Translation
A continuation of Spanish 262 major literary works of Spain and Spanish America. No knowledge of Spanish required. Fulfills a requirement for Latin-American Studies Concentration.
3 Lect Hrs 4 Credits
Staff

300 Spanish Pronunciation and Intonation
Designed to provide training in the pronunciation, enunciation, and intonation of Spanish. Intensive practice in the classroom and the language laboratory based on selected literary texts.
1 Lect Hr, 1 Lab Hr. 1 Credit
Staff

301 Advanced Composition and Conversation
Designed to provide practical training in oral and written expression to students with intermediate proficiency in Spanish. Recommended to students who wish to practice and improve their ability to communicate in Spanish. Weekly themes and frequent oral reports.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

302 Advanced Composition and Conversation
A continuation of Spanish 301, using more advanced materials, may be taken as a second semester sequel to Spanish or by itself. Weekly themes and frequent oral reports.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

303 Spanish Composition
Open only to Spanish-speaking students. Techniques in writing, problems of written Spanish, style and correctness. Exercises in different kinds of composition.
3 Lect Hrs 3 Credits
Staff

304 Language Arts
Introduction to applied linguistics and detailed study of Spanish phonology, morphology and syntax. Special attention to the mechanisms of interference in English-speaking learners of Spanish.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

305 Problems of Syntax in Reading and Writing
An in-depth study of particular problems of Spanish syntax which are not presented fully in elementary or review grammars. Particular attention will be directed to word order, relative clauses, prepositional phrases, the reflexive as a substitute for the passive and object pronouns; that is, problems which frequently cause misunderstanding in reading and difficulties in self-expression.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

306 Advanced Spanish Grammar
The principle objective of this course is to give students a more profound and complete knowledge of Spanish grammar for its own sake, rather than to offer further practice in self-expression (advanced composition and conversation) or to resolve problems in reading comprehension (problems of syntax). Various methods of presenting the more complicated and difficult aspects of grammar will be employed, including written translation from English to Spanish.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

310 Spanish Civilization
Studies in Spanish history, thought and the arts as a background for literature.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

323 The Short Story in Spanish Literature
Historical development of the short story in Spanish literature from its origins to the present. Emphasis on 19th and 20th centuries.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Osorio
Offered in Alternate Years

324 Women in Spanish Literature
The changing image of women throughout the centuries.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Osorio
Offered in Alternate Years

350 Literary Arts
Introduction to literary studies, textual analysis of representative selections from major literary movements and periods, using the terminology of literary criticism and the perspectives of literary history. Practice in literary analysis.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

351 Survey of Hispanic Literature
Selected readings from the origins of Hispanic literature to the end of the 17th century: Middle Ages, conquest of the New World, and the Golden Ages. Major works such as *El Cid, Libro de Buen Amor*, and *The Celestina* will be discussed in their social and historical context, as well as representative writings of major figures such as Cervantes, Quevedo, Lope de Vega and Sor Juana Ines de la Cruz.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Francis

352 Survey of Hispanic Literature
Spanish and Spanish-American literature from the 18th century to the present. Emphasis will be given to the literary evolution of Spanish thought as it is revealed in major periods such as the Enlightenment and the generation of '98, as well as tracing the development of Spanish prose and poetry in the diverse movements of romanticism, modernism, and the vital contemporary scene. Readings will include selections from authors such as Feijóo, Bécquer, Unamuno, Rubén Darío, Borges, Nicolás Guillén, and Neruda.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Francis

353 The Hispanic Character as Portrayed in Literature
Readings in Spanish and Spanish-American literature illustrating the Spanish character and its interaction with indigenous or Creole cultures of Spanish America.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Ryan

361 Spanish-American Civilization
Major aspects of the cultural evolution of the Spanish-American countries from pre-Hispanic days to present.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

362 Spanish-American Short Story
A survey of the development of the short story in Spanish-American literature with special attention to the most representative 20th century short story writers.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Barradas
Offered in Alternate Years

363 Spanish-American Theatre
A panoramic view of Spanish-American theatre from its origins in the colonial period to the present.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Barradas
Offered in Alternate Years

364 Spanish-American Essay
Selected readings from the works of the major essayists of the 19th and 20th centuries. Fulfills a requirement for Latin-American concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff
Offered in Alternate Years

366 Spanish-American Colonial Literature
A survey of the literature of the Spanish colonies, focusing on its outstanding figures — Inca Garcilaso, Juana Inés de la Cruz — as well as the literature of the independence movement. Fulfills a requirement for Latin-American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Walia
Offered in Alternate Years

421 Spanish Literature before 1500
Readings from *El Cid* through *The Celestina*, including such works as *Libro de Buen Amor, El Conde Lucanor*, romances, and the poetry of Jorge Manrique and others.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Sanchez-Arce, Mr. Ryan

422 Golden Age Poetry
Selections from Garcilaso, Herrera, Fray Luis de León, San Juan de la Cruz, Lope de Vega, Góngora, Quevedo.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff
Offered in Alternate Years

423 Golden Age Prose
Readings of various forms of Spanish prose of the 16th and 17th centuries including picaresque, pastoral and moorish novels, and important works of moralists, mystics and satirists such as Fray Luis de León, Santa Teresa, Quevedo, Gracián and others.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Sanchez-Arce
Offered in Alternate Years

424 Golden Age Theatre
Outstanding dramatists of the 16th and 17th centuries. Lope de Vega, Mira de Amescua, Tirso de Molina, Ruiz de Alarcón, Calderón de la Barca.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Sanchez-Arce
Offered in Alternate Years

425 Spanish Romanticism
A study of Spanish romantic literature from 1812 to 1850. Stresses the relationship between the emerging liberal regime and the romantic literary production as it contributed fundamentally to the shaping of present day Spain. Authors included are Larra, Martinez de la Rosa, Espronceda, Duque de Rivas, Zorrilla, Bécquer. Samples of Costumbrismo and other minor genres will also be discussed.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz

426 Spanish Realism
Follows the evolution of Spanish literature through the second half of the 19th century as a witness to the ideals and failures of the bourgeois society. Realism and naturalism as literary movements will be thoroughly studied. Authors included are Fernan Caballero, Alarcon, Valera, Pardo Bazan, Pereda, Campoamor, Galdos, Clarin.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz

427 The Generation of 1898
Literary and intellectual trends of the generation of 1898. Selected readings from Ganivet, Unamuno, Azorín, Baroja, Valle-Inclán, Machado, and others.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Osorio
Offered in Alternate Years

428 20th Century Spanish Fiction
Selected readings from the major novelists and short story writers of the 20th century. Authors included are: Unamuno, Baroja, Miró, Pérez de Ayala, Sender, F. Avala, Cela, Goytisolo, A.M. Matute and others of the post-Civil War period.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Osorio, Mr. Ryan
Offered in Alternate Years

429 20th Century Spanish Poetry
Selected readings from the major poets of the 20th century. Authors included are: Machado, J.R. Jiménez, the generation of 1827 and others of the post-Civil War period.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff
Offered in Alternate Years

430 20th Century Spanish Theatre
Selected readings of the major dramatists of the 20th century. Authors included are: Benavente, Valle-Inclán, Garcîa Lorca. R. Alberti, Buero, Vallejo, Sastre and others of the post-Civil War period.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Osorio
Offered in Alternate Years

431 20th Century Spanish Essay
A study of the Spanish philosophical, historical, literary and political essay through the 20th century, and its relation to local and universal

circumstances. The course will focus on certain main subjects as seen by individual writers: contemporary man, conceptions of history, problems of Spain, nature of literary creation. Authors included are Unamuno, Ortega Y Gasset, Maranón, Castro, Azaña, D'Ors, Menéndez Pidal, Madariaga.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz
Offered in Alternate Years

432 Don Quixote
A critical analysis of Spain's masterpiece.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Ryan
Offered in Alternate Years

433 Galdós
Selected works of Spain's major modern novelist. Will include novels such as, but not restricted to, *Doña Perfecta, Miau, Fortunata Y Jacinta, Misericordia, Nazarín*, and others.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff
Offered in Alternate Years

461 19th Century Spanish-American Literature
A study of the romantic and realistic literature in Spanish America with emphasis on the Gaucho literature. Fulfills a requirement for Latin-American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Ms. Walia
Offered in Alternate Years

462 Spanish-American Modernism
A study of the Spanish-American modernist movement (1875-1910) with attention to both prose and poetry. (Although mainly an aesthetic movement, it contains also the seeds of a new Spanish-American consciousness based on the perception of the specific reality for or Mundonovismo, on the opposition to the United States, and on the need for a more just social order). Authors included are González Prada, Martí, Silva, Rubén Darío, Rodó, Larreta, Lugones, Nervo, Herrera Y Reissig. Fulfills a requirement for Latin-American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz
Offered in Alternate Years

463 Modern Spanish-American Fiction
Concentrates on the development of modern Spanish-American fiction between approximately 1910 and 1945. Special attention is paid to the fiction of the Mexican Revolution and the so-called Criollista novel as a way to introduce some of the most pressing problems of the Spanish-American society: Indians and peasants, dictatorship, economic exploitation, revolt and repression, man's and nature's brutality. Authors included are Gallegos, Azuela, Icaza, Quadra, Rivera, Guiraldes, Quiroga, Arguedas. Fulfills a requirement for Latin-American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz
Offered in Alternate Years

464 Contemporary Spanish-American Fiction
A study of contemporary Spanish-American fiction from about 1945 to the present. Focuses on such movements as avant-garde, magic realism, meta-physical fantasy, the 'boom', social realism, (which have made Spanish-American fiction one of the most widely read and discussed all over the world). Authors included are Asturias, Borges, Sábato, Mallea, Onetti, Cortázar, Garcîa Márquez, Fuentes, Rulfo, Carpentier, Vargas Llosa, Puig, Lezama Lima, Sarduy. Fulfills a requirement for Latin-American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz
Offered in Alternate Years

465 Contemporary Spanish-American Poetry
Follows the evolution of Spanish-American poetry through the 20th century from the modernist movement up to the present. Pays attention to the outstanding group of poetesses formed by Mistral, Storni, Ibarbourou and Agustini; to the black poetry of Guillén and Palés Matos; and to the avant-garde poetry in general, including that of Neruda and Paz. Fulfills a requirement for Latin American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz
Offered in Alternate Years

466 Rubén Darío
A study of a major Spanish-American poet and his influence in the Hispanic world. Fulfills a requirement for Latin-American Studies Concentration.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Mr. Navas-Ruiz
Offered in Alternate Years

478 Independent Study
For majors who wish to study a special subject not covered in our regular courses. The student must present his/her idea to a professor of the department. A detailed plan of study including a list of readings, scheduled consultations, and a statement about examinations and/or required papers must then be presented by the professor for departmental approval. May be taken only once except where special permission is granted by the department.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

479 Independent Study
Under very special circumstances, the department may grant special permission to a major to take a second independent study, following the procedures outlined for Spanish 478.
Prerequisite: Intermediate Spanish or equivalent.
3 Lect Hrs 3 Credits
Staff

480 Studies in Hispanic Literature
Special topics or individual authors, topics vary from year to year.
3 Lect Hrs 3 Credits
Staff

481 Senior Seminar
Guided research projects in Spanish or Spanish-American literature. Students will be admitted to the seminar upon recommendation of the supervising professor and with permission of the department.
Prerequisite: Senior standing.
3 Lect Hrs 3 Credit
Staff

491 Honors Thesis
A paper written under the supervision of

member of the Spanish department and with permission of the department. See requirements for graduating under Requirements for Graduation.
Prerequisite: At least two advanced literature courses beyond literary arts and the survey of Hispanic literature.
3 Lect Hrs 3 Credits
Staff

586 Methods and Practice Teaching of Spanish in Secondary Schools
The issues, principles and methods of secondary school Spanish teaching. Supervision and critique of practice teaching. — 3 credits toward Spanish major.
Prerequisite: 6 hours of education courses and admission to Teacher Certification Program.
3 Lect Hrs, 20 Lab Hrs
Practice Teaching 9 Credits
Staff

TEACHER CERTIFICATION

211 The Library and the City Child
This course is designed to explore the school and public library's role in meeting the needs of city children and young adults. It concentrates on creating a viable response to those needs and determining the special characteristics of the kind of library that will be able to meet them. Field-work is required.
3 Lect Hrs 3 Credits
Ms. Kaufman, Staff

212 Books and the City Child
A continuation of TCP 211 this course concentrates on an examination of children's literature as a reflection of the world of the city child, as a means of expanding that world and making it more comprehensive. Field-work is required.
3 Lect Hrs 3 Credits
Ms. Kaufman, Staff

589 Issues in Elementary School Curriculum
The course surveys the goals, structures, learning theories and philosophies in elementary education. Within that framework, it focuses on instruction in the language arts, reading and math, concentrating on specific curriculum, methods and materials of those subjects. In-school fieldwork: 4 hrs/week, — 15 weeks.
Prerequisite: Acceptance to TCP.
4 Lect Hrs 4 Credits
Ms. Gallo

590 Curriculum, Methods and Supervised Student Teaching in the Elementary Schools
This course includes work in moral education, classroom design, teaching special needs children in the regular classroom, and extensive interdisciplinary curriculum development. In-school fieldwork: 4½ days of full-time, supervised student teaching/week; 15 weeks.
Prerequisite: Acceptance to TCP.
5 Lect Hrs, 34 Hrs Student Teaching 9 Credits
Ms. Gallo

THEATRE ARTS

Faculty
Louis E. Roberts, Associate Professor, Chairperson; Associate Professor Robert R. Evans; Assistant Professors William Roberts, Gail Van Voorhis; Lecturers Denise Annette-Ashley Gordon, Barbara G. Ausubel, Laura Sheppard, Roger Hendricks Simon, Linda Spruill.

Requirements for Graduation

Courses in Theatre Arts are offered at three levels: Introductory, Intermediate, and Advanced. Introductory courses require no prerequisites and are directed to the student body as a whole. Intermediate courses are workshops, courses in drama taught by other departments of the University, and introductions to special areas of inquiry intended to provide basic knowledge of the field. Advanced courses are given in the more specialized areas of Theatre Arts.

Sumary of the requirements for majors: Th 111, Th 123, Th 223, Th 235, or Th 236, two workshops, two advanced courses, two courses offered by other departments in dramatic literature, two courses in dramatic literature within the Theatre Arts Department, for a total of eleven courses.

111 Traditions of Western Drama
The intellectual content, designs and techniques of the drama of the western world, from the classic Greek to the contemporary European and American theatres. Emphasis on the cultural environment of each major period and locale of the drama in relation to the theatre and its public.
3 Lect Hrs 4 Credits
Mr. Roberts, Mr. Evans

121 The Styles and Techniques of Comedy
A study of the comic form emphasizing the differing styles, techniques, motivations and degrees of effectiveness of various exemplary comic playwrights, particularly in relation to their audiences, actors, and theatre architectures.
3 Lect Hrs 4 Credits
Mr. Roberts, Mr. Evans

122 The Styles and Techniques of Tragedy
The evolution of the tragic form, emphasizing the differing styles, techniques, motivations and degrees of effectiveness of various exemplary tragic playwrights, particularly in relation to their audiences, actors, and theatre architectures.
3 Lect Hrs 4 Credits
Mr. Roberts, Mr. Evans

123 Stagecraft I
An introduction to and exploration of stage facilities and skills, emphasizing skill-development in the uses and choice of tools. Materials and procedures necessary for scenic and property execution; includes lab work in department productions.
3 Lect Hrs 3 Credits
Ms. Van Voorhis

125 Speed and Movement
Basics of voice-training, diction-improvement, diaphragmatic breathing, movement work for the stage, using tai chi, yoga, characterization-movement and movement to develop stage presence; the keeping of a journal by each student.
3 Lect Hrs 3 Credits
Staff

126 Speech and Oral Interpretation
Study of principles of speech and oral interpretation, emphasizing the analysis, preparation and oral presentation of literary materials.
3 Lect Hrs 3 Credits
Staff

200 Musical Theatre
An introduction to styles, kinds and techniques of performance in musical theatre, from early mime through commedia dell-arte, opera and operetta, and modern musical comedy. Vocal and movement training, scene work and musical numbers developed, as well as semester projects of musical performances.
3 Lab/Lect Hrs 3 Credits
Mr. Roberts

212 Theatre of Social Protest
Historical survey of the use of the theatre to challenge the values of society. The techniques of stagecraft used in different periods to reveal conflict in society to dramatize contemporary issues, and to influence public opinion.
3 Lect Hrs 3 Credits
Mr. Roberts

213 American Theatre Before O'Neill
A survey of American drama from before the revolution until the advent of O'Neill on Broadway in 1920. Emphasis will be placed upon the relation of individual plays to American theatrical, political, and social history.
3 Lect Hrs 3 Credits
Mr. Evans, Mr. Roberts

214 American Theatre Since O'Neill
The rise and decline of the great period in American playwriting and production. Emphasis on the Broadway theatre as a mirror-image of the ideas and events of American contemporary history since World War I.
3 Lect Hrs 3 Credits
Mr. Evans, Mr. Roberts

215 Mid-Twentieth Century Drama
The ideas, values and techniques of the contemporary theatre as reflected in modern styles of stage production.
3 Lect Hrs 3 Credits
Mr. Roberts

216 Elizabethan Stage
Study of Elizabethan stage techniques as revealed in plays by Marlowe, Shakespeare, Jonson, and Webster.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Mr. Evans

218 Modern European Drama
A study of late 19th, early 20th century theatre in Europe that marked the beginning of naturalistic, realistic and symbolic drama, and created a revolution in directorial, scenic and performance techniques. Plays are presented as scripts to be produced. Students create production books integrating all facets of theatrical expression.
3 Lect Hrs 3 Credits
Mr. Roberts

220 Black Theatre in America
An exploration of the history of Black theatre from its beginnings to the present, as related to and reflective of American society. An exten-

ion of the historical understanding of theatre elated to society: a study of an artistic tradition nfluencing American theatre practices.
3 Lect Hrs 3 Credits
Staff

223 Stagecraft II
A study of the tools, equipment and procedures necessary in theatrical graphics, lighting and sound production. Includes lab work in department productions and individual projects.
3 Lect Hrs 3 Credits
Ms. Van Voorhis

224 Play Production I
A study of the process of producing a theatrical event, emphasizing the selecting and training of the production staff, budgeting, and promotion. Lab work includes supervisory roles in department productions.
3 Lect Hrs 3 Credits
Ms. Van Voorhis

225 Play Production II
Further exploration of the process of producing theatre, emphasizing organization of personnel and the facilities for touring and for repertory.
Prerequisite: Stagecraft I or Play Production I.
3 Lect Hrs 3 Credits
Ms. Van Voorhis

226 Play Reading
Decoding a script — interpretation of playwright's intention, director's function, designer's vision, actor's creation. Emphasis on vocal characterization in readings done by class of a variety of plays — mostly short, some original, some unproduced.
3 Lect Hrs 3 Credits
Mr. Roberts

230 Workshop in Drama
A course designed to study the connection between the text and the performance of a play. Some attention is given also to the playwright, his time, and to production history. Written work may include a director's notebook and program notes. Students will participate in a fully-mounted production to be presented to the university community free of charge.
3 Lect Hrs, 3 Lab Hrs 4 Credits
Mr. Roberts, Mr. Evans

232 Modern Dance Theatre Workshop
Different colors, textures, rhythms and images expressed in body movement; African, jazz, blues, modern dance, tai chi, yoga and improvisation. The final project will be a

movement-dance-theatre piece incorporating all the techniques experienced in class.
6 Lect Hrs 4 Credits
Staff

234 New Theatre Strategies
Works in a new direction in theatre: the evolution of a theatre piece from a theme or group of themes rather than from a script. Students will be involved in all areas of the collective process formulating drama from the interaction of a group. Structured and directed by the instructor.
2 Lect Hrs, 2 Lab Hrs 3 Credits
Staff

235 Introduction to Directing
The director as creator of the vision of the whole play and all its elements; acting, lighting, stage design, styles of theatre, script breakdown, production notebook, slow, careful work in directing small scenes.
3 Lect Hrs 3 Credits
Staff

236 Introduction to Acting I
Dramatic form as required in acting. A survey of various styles; Greek, Elizabethan, restoration and modern; the actors function with emphasis on recently evolved methods of acting, and upon preparation of scenes in class.

3 Lect Hrs 3 Credits
Staff

240 Women in Theatre
Plays by and about women, the history of women in theatre, supplemented by visits with women employed in the theatre. The changing role of women in society as reflected in drama and literature.
3 Lect Hrs 3 Credits
Staff

245 Creative Drama for Children
Students will learn creative drama techniques, learn to teach drama to children of various ages and actually teach in the community schools. Emphasis on expression of creative energies, bodies, voices, emotions, theatre games — not on mounting plays.
3 Lect Hrs 3 Credits
Ms. Ausubel

250 Introduction to Playwriting
Designed for students who are interested in the theatre, but not primarily in playwriting itself, to gain knowledge of considerations relating to the creation of a script and the reading of scripts. Recommended for all students interested in acting and directing.
3 Lect Hrs 3 Credits
Mr. Evans, Mr. Roberts

251 Playwriting I
Writing for the theatre, including examinations of model one-act and three-act plays by major contemporary writers; selected readings on the craft of playwriting, and the completion of an original play begun in class.
3 Lect Hrs 3 Credits
Mr. Evans, Mr. Roberts

260 Introduction to Scene Design
Theatre as art form in cultural and popular expression — function of the designer, application of elementary scenery as given in stagecraft classes, methods of pictorial representation, survey of architectural styles as applied to stage scenery, and of historical design for the stage.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Mr. Roberts

261 Introduction to Costume Design
The theatre incorporating the history of fashion and costume design. A theoretical approach to designing costumes for the theatre and film. An introduction to the uses of color, scale and general design elements as they apply to stage costuming, qualities of fabric, basic cutting and draping, in stage costumes.
3 Lect Hrs 3 Credits
Mr. Roberts

275 Introduction to Screen and Television Writing
An introduction to the art and technical aspects of writing scripts for film and television. Involves analyses of screenplays, study of screen writers past and present, the relationship between director and writer, aesthetics of film writing. Project: the completion of a full-length screenplay from first treatment (synopsis) through first and second drafts and final script.
3 Lect Hrs 3 Credits
Staff

300 Seminar in the Scenic Imagination
The creative principles of stage production, based on an analysis of the playscript in its relation to stage action, setting, costumes and lighting. Study of scenic metaphor and a review of the historic forms of staging, with emphasis on modern styles from naturalism to absurdism and epic theatre.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

301 Seminar in Contemporary American Playwrights
Analysis of the art of a major living writer of the American stage; the history of his plays and their production; critical response; contribution of his drama to the American theatre and society. In most cases students will consult with the playwright and/or those who have worked with him.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Mr. Roberts

320 Shakespearean Acting
Specialized study of Shakesperean plays based on historical awareness of acting styles and techniques employed since the 16th century. Students will create a broad range of characters in a variety of scenes from Shakespeare.
3 Lect Hrs 3 Credits
Mr. Evans, Mr. Roberts

335 Introduction to Directing II
Advanced work in directing, including the mounting of scenes and one-act plays.
Prerequisite: Introduction to Directing I.
3 Lect Hrs 3 Credits
Staff

336 Introduction to Acting II
Advanced work in acting, including the mounting of scenes and one-act plays.
Prerequisite: Introduction to Acting I.
3 Lect Hrs 3 Credits
Staff

351 Playwriting II
Writing for the theatre, with emphasis on the three-act form, including the construction of a scenario and completion of a draft of an original three-act play.
Prerequisite: Playwriting I.
3 Lect Hrs 3 Credits
Mr. Evans, Mr. Roberts

360 Advanced Design
Advanced techniques in the scene sketch, models for scenery, interpretations of the differing styles required for plays, opera, ballet, musical comedy, etc. Sketches, ground plans, and one major design project to be executed during the term.
Prerequisite: Design I or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Roberts

04 Advanced Directing
dvanced work on special class projects in a aboratory situation. The mounting of small cenes and plays.
rerequisite: Directing I and II. Permission of nstructor.
Lect Hrs 3 Credits
taff

35 Theatre Arts Internship Program
Designed to enable theatre arts majors with ufficient course work behind them to earn 6 redits for a semester's internship with a televi- ion studio, working theatre, or theatre pro- ram in a community college.
rerequisite: Theatre Arts major, Juniors and eniors only. Permission of instructor.
Hrs by Arrangement 6 Credits
Mr. Evans

36 Advanced Acting
Advanced work on selected projects with spe- ial attention to the individual actor's needs. cene-work, script breakdown, and develop- nent of a character.
rerequisite: Acting I and II.
Hrs 3 Credits
taff

50 Television Production
An exploration and evaluation of techniques of elevision production, with particular emphasis n common industry practices.
Lect Hrs 3 Credits
Ms. Van Voorhis

52 Lighting Design
tudy of the principles and techniques of il- umination for the stage.
Lect Hrs 3 Credits
Ms. Van Voorhis

78 Independent Study
Open only to a limited number of students in ny one semester. Research, study and partici- ation in theatre projects outside the classroom nvolving consultation with a faculty advisor. A written prospectus is required.
rerequisite: Permission of instructor and de- artment chairperson.
Hrs by Arrangement 1-3 Credits
taff

479 Independent Study
Open only to a limited number of students in ny one semester. Research, study and partici- ation in theatre projects outside the classroom nvolving consultation with a faculty advisor. A written prospectus is required.
Hrs. by arrangement 1-3 Credits
Staff

481 Selected Topics
The study of different areas within the context of theatre arts preparation. Courses will vary each semester and will be announced during pre-registration periods.
Prerequisite: Sophomore standing.
3 Lect Hrs 3 Credits
Staff

586 Curriculum and Methods Student Teaching — Theatre Arts
The issues and principles of learning and teaching drama. Supervision and critique of practice teaching in the schools.
Prerequisite: Admission to the Teacher Certification Program and permission of instructor.
3 Lect Hrs, 20 Lab Hrs
(practice teaching) 3-9 Credits
Mr. Roberts

WOMEN'S STUDIES

100 Women and Society: An Introduction to Women's Studies
An introductory, interdisciplinary course recommended as a first course in Women's Studies. Through lectures, readings, and discussions, students will examine the origins of women's oppression; female and male sex roles; marriage and the family; women workers at home and in the labor force. Students will relate course material to experiences in their own lives. Preference given to first and second year students.
3 Lect Hrs 4 Credits
Ms. Froines, Ms. Humez

200 Twentieth Century Women Writers: A Feminist Perspective
An intermediate-level course which examines the ways women writers in this century have dealt with some important themes of contemporary feminism. These include: the special difficulties facing the woman artist; the process of female socialization and its impact on mother-daughter relationships; female adolescence, lesbianism; the need for making the lives of ordinary women a subject for study and a source of artistic creation; and rediscovery of women's collective past. Novels, short stories, some analytical essays and autobiographies will be used.
Prerequisite: One Women's Studies course or permission of instructor.
3 Lect Hrs 3 Credits
Ms. Humez

300 Feminist Thought
An advanced course designed for Women's Studies concentrators on the position of women in society. It is a survey of a particular body of Western political thought. Topics include British feminism, Marxian views on the 'woman question', socialist theories.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credits
Staff

350 Women in Third World Countries
An upper-level course focusing on the impact of colonialism and imperialism on women's lives in selected Third World countries. Topics examined will include changing work and family roles of women; the woman's role in economic development: the food crisis and population control: women's participation in national liberation struggles and socialist construction.
Prerequisite: One Women's Studies course, Introductory History or Political Science, or permission of insturctor.
3 Lect Hrs 3 Credits
Ms. Froines

400 Research and Methods in Women's Studies
A seminar to introduce students to a variety of research methods in various disciplines in order to develop an interdisciplinary approach to selected topics in Women's Studies. Instructor and students will consider new sources of material for research on women. Completion of a major project or research paper will be required. Limited to 15 Junior or Senior students.
Prerequisite: Two Women's Studies courses and permission of instructor.
3 Lect Hrs 3 Credits
Staff

479 Independent Study
Open to a limited number of students each semester. A written prospectus must be formulated with the instructor.
Prerequisite: Permission of instructor.
Hrs by Arrangement 3 Credits
Staff

480 Special Topics
Selected topics in Women's Studies. Taught by visiting lecturers and staff.
Prerequisite: Woman's Studies 100 or equivalent or permission of instructor.
3 Lect Hrs 3 Credits
Staff

College of Public and Community Service

The College of Public and Community Service (CPCS) is an innovative college within UMass/Boston. Since its opening in September 1973, the College has sought to address the urban mission of the University in several important ways. First, the College actively recruits older, more experienced students, whom it admits on the basis of demonstrated commitment to a public or community service career rather than by using conventional admissions criteria. Second, the College draws upon a faculty that is experienced in public and community service as well as in academic work. Third, the College recognizes that learning goes on both in and out of the classroom. Students are therefore encouraged to engage in field based learning and to seek out learning opportunities in a variety of settings in addition to the classroom. Fourth, the College believes that the B.A. degree should be arranged on the basis of what students know, what they can do, and what they have experienced. Thus the College recognizes that adult learners often prefer individualized non-competitive learning situations and so provides all of its students with that kind of learning environment. And finally, the College believes its faculty and students should be involved and prepared to make a difference in public and community service. Its program is designed to accomplish this objective.

Competency-Based Curriculum

The curriculum of the College is competency-based. Competency is knowledge in action, knowing and doing something well: designing an evaluation plan or a community change program, analyzing and resolving personal role conflicts, writing a position paper advocating an organizational change, comprehending value systems and audiences, developing an economic profile of a legal community, mediating a legal dispute, creating a treatment plan for a juvenile offender. These are examples of competencies in the CPCS curriculum, which has been developed by the teaching/practitioner faculty of CPCS in consultation with professionals in relevant service career and academic fields, community leaders and CPCS students themselves.

The curriculum of the College is a set of demonstrable competencies, relevant to both public and community service and to general education. The goal of our competency based curriculum is to certify that our graduates possess the knowledge and skills needed to perform such worthwhile activities competently.

Graduates of CPCS are awarded the Bachelor of Arts Degree by having clearly demonstrated a variety of competencies deemed crucial to successful careers in public and community service. Competency is recognized and certified regardless of how, where, or when the student acquired it. Most CPCS graduates gain their competence from a combination of CPCS courses, courses taken elsewhere, field work, independent study, and prior experience.

Within the limits of distribution requirements, students design their own programs by demonstrating competencies in thematic areas such as the Humanities and Social Sciences, as well as in essential reading, writing and mathematical skills. Students choose their service career areas from one or more of the following Curriculum Centers: Legal Education Service, Community Change and Housing, Human Growth and Development, and Human Services Advocacy. Students must also complete an entry program called Assessment and an Independent Interest Certificate. Approximately 25 per cent of a student's work is in a Career Center, 20 per cent in Essential Skills, and the remaining 55 per cent distributed in the General Education curriculum.

In the competency-based system, each competency statement contains its own performance criteria. Successful demonstration of competence is measured by standards that are relevant to both academic performance and the world beyond the academy. Performance standards are established by the faculty in consultation with service career practitioners and are published as part of each competency statement.

Thus, CPCS students, to a considerable degree, shape their own education by learning and demonstrating competencies central to their own life interest and career objectives. While the curriculum prepares the student for a wide variety of roles in public and community service, the CPCS program emphasizes those competencies needed in the delivery of human services.

The "Liberating Arts"

The College believes that the true purpose of a liberal education is to free people's minds: to increase consciousness of the deeper meanings of their lives, their work, their communities. As people grow more aware of the meaning of what they do and of the relationships between knowledge and action, their consciousness is liberated and their ability to learn is revitalized.

The College has organized its General Educa tion Curriculum in an interdisciplinary form t show the relationships between various fielc of knowledge, and to relate these liberating ar to work in public and community servic careers. For example, the American Value certificate includes ethics, history, literatur sociology, and anthropology in a way that en bles people to deal more effectively with que tions of value in their personal and professiona lives.

Field Education

The College encourages the development o off-campus activities that are directly related t the competency-based curriculum. Studen who are employed in jobs related to the con petencies are urged to identify resources fo competency instruction and/or evaluation i their work settings and to develop a plan t relate these activities to their educational goals The College does not automatically grant cred for work experience. However, the faculty helps a student relate work experience to ap propriate competencies and in that fashion ''credit'' it. Previous work experience is help ful in meeting competency requirements.

The College Centers make available to students field placement opportunities (usually volunteer) in agencies, organizations and programs where it is possible to work toward competency acquisition. Placements are also used to increase a student's understanding of course material and, if relevant, to provide the opportunity for demonstration of competencies.

The College also initiates the development of relationships with community service agencies in order to recruit employees who may be interested in personal and professional growth. Through the joint efforts of agency and College staff, cooperative education programs are designed to provide instruction and evaluation activities at the work site as well as at the college.

Students should address any questions about field placement activities, course related activities or adaptation of a work site to educational goals to appropriate center faculty.

Evaluation of Competence According to Performance Standards Instead of Grading

When students demonstrate competencies, they are evaluated according to specific standards which are published in advance. All students are required to demonstrate competence at the same high standards of performance. Students are evaluated as having successfully demonstrated competence, or are informed by evaluators what further work is needed to demonstrate competence. Instructional help is available through courses and individual work with the faculty, a tutorial program, and peer study groups. There is no grading as such at the College. This standard-centered approach is at the heart of competency based education; it allows students to focus on individual and group needs, to learn at their own pace, and to work cooperatively toward learning goals.

The Student Body

CPCS students have one thing in common: They represent the human resources and hopes of Greater Boston. Men and women of all ages, races, creeds and economic backgrounds will be your fellow students at CPCS. Their average age is 32 and most work full or part-time. Generally students at CPCS are working in the fields of public and community service or seeking such work. Some students are attending CPCS in order to change careers and will use their degrees to move into new fields. Their diversity, both in cultural and professional background, make CPCS a lively and interesting learning situation.

Organization of Curriculum and Distribution Requirements

Since the College is engaged in the certification of competence, the curriculum is organized into a series of coherent units called Certificates. Within each certificate is a set of distinct Competencies, which are used as the basic academic unit at CPCS. On the transcript, competency titles appear beside codes designating the certificate within which they belong. The Certificates are administered by interdisciplinary academic units called Centers.

The CPCS distribution requirements are designed to insure an integrated educational experience. The college awards a Bachelor's degree upon the successful demonstration of the specific number of Competencies from the following curricular areas:

— **Assessment**: two competencies in an entry program called Assessment, emphasizing skills in identifying competence gained through prior or nontraditional learning, and educational planning skills.

— **Applied Language and Math Certificates**
(3) required Certificates in Reading, Writing and Speaking, and Mathematics

— **General Social Sciences and Humanities Certificates**
(5) required Certificates chosen from Certificate groups:
Cultural Studies
Individual and Society
Management and Transportation of Institutions

— **Career Education Certificate**
(1) major Certificate chosen from one or more Career areas:
Community Change
Housing
Human Growth and Development
Legal Education Services

— **Independent Interest Certificate**
(1) Certificate designed or selected independently by the student.

CPCS Academic Policies

Full-Time Academic Load

A minimum Full-Time Academic Load is defined by official registration for at least (5) competencies each semester.

Minimal Academic Progress Policy

A full-time student must successfully complete or receive a progress report for five competencies each semester.

A student must complete all competencies for which progress reports were received within one semester following the semester in which the progress reports were given.

Completed competencies earned in one semester beyond the minimal academic progress requirement may be carried over into subsequent semesters to meet the minimal academic progress requirements.

In the event that a student does not fulfill the minimal academic progress requirement, the Associate Dean for Academic Affairs may take one of the following actions:

a. recommend an intensive support and service program for the student.
b. place the student on academic probation for a one-semester period.
c. defer placing a student on academic probation if the student can show that difficulties in making academic progress are due to illness, family hardship, unavoidable conflicts between work and education, or other compelling reasons. Such a deferral would be for one semester only. If the student receiving a deferral does not meet the Minimal Academic Progress Policy in the semester following the deferral, s/he will be placed automatically on Academic Probation.

Academic Probation is defined as a period of one semester, during which the student on probationary status must reach the minimal progress level for that current semester. During the probationary semester, a student does not have to complete the deficiencies of the previous semester, but must meet the requirement of the probationary semester only. Once the student has met the minimal progress requirement, the probationary status will be removed.

If the student is unable to meet the minimal progress requirement after a one-semester probationary period, the Associate Dean for Academic Affairs may recommend to the Dean that the student be withdrawn from the College. If the Dean concurs in this recommendation, the student will be withdrawn.

The cumulative limit for Academic Probation semesters will be three. If a fourth probationary semester is indicated, the student will at that point be administratively withdrawn from the College, unless the student can suc-

cessfully petition the Associate Dean for Academic Affairs for an additional probationary semester on grounds specified in C above. Any student who fails to meet the minimal academic progress policy after a fourth probationary semester will be automatically withdrawn.

This policy will be effective September 1, 1976 for all students entering on or after that date.

This policy will be effective for all students, regardless of date of entry ino the College, on January 1, 1977. At that time all continuing students who have been in the College more than two semesters will be expected to meet the minimal progress requirement of 5 competencies per semester from that semester forward but not retroactively.

Verifiable Competencies

"Verification" is the CPCS term for converting (or, directly transferring) learning gained through academic courses taken elsewhere or work experiences into competencies. Verification means that CPCS faculty evaluators have established *IN ADVANCE* that certain courses or job titles fulfill the criteria and standards of specific competencies within the certificates.

Below is a listing of those competencies for which verification of courses or work experiences have been established as of FALL '77. This listing does not include all competencies and is subject to change based on CPCS faculty review and revision. It is published here to give prospective CPCS students an indication of the kinds of prior learning that will be routinely transferable. Learning from other courses or work experiences may also translate into competencies but will require additional evidence which must be presented to CPCS faculty evaluators. In all cases, course work taken elsewhere or work experience must relate to the content and standards of CPCS competencies.

COMPETENCIES THAT CAN BE VERIFIED

Competencies	Courses or Job Titles
Reading Certificate:	
Comprehending the Work	— A second year literature course
ALM Center requires direct evaluation of entry competency "Reading the Work" ("Initial Comprehension") to complete the entry diagnostic/evaluative process.	
Writing/Speaking Certificate:	
Analysis	— Published article in a professional journal
Technical Communication	— Published article in a professional journal
Mathematics Certificate:	
Computer Science	— Computer Science or Programming Course
Statistics	— Statistics Course
ALM requires direct evaluation of entry competencies "Basic Math" and "Algebra" to complete the reentry diagnostic/evaluative process.	

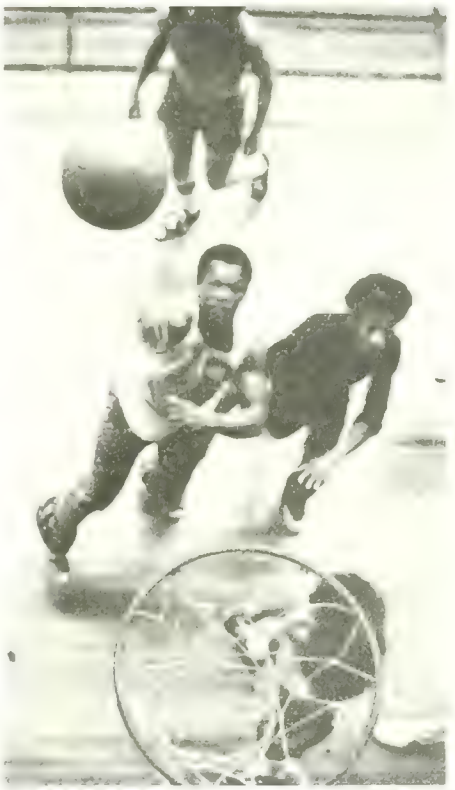
Competencies	Courses or Job Titles
American Values Certificate:	
What Are Values?	— Values clarification workshops, courses in History of Philosophy, Ethics, Ethical Problems in a contemporary issue such as War, Medicine, etc.
Values and Work	— Sociology of Work
Values and Myths	— Myths and Modern Society
Cultural Comparison Certificate:	
Contains no verifiable competencies at present. See above introductory paragraphs 2 and 3	
Basic Foreign Language Certificate:	
Contains no verifiable competencies at present. See above introductory paragraphs 2 and 3	

Role and Identity Certificate:

Competencies	Courses or Job Titles
Who Am I?	— Three months in a personal growth group
How Do I See Others?	— One semester of Social Psychology — One semester of Sociology — Anthropology covering role and perception
How Do Others See Others?	— Course in Counseling or Social Work — Course in Social Psychology or Social Anthropology — Two semester course in Introductory Anthropology
Distorting Mechanisms	— Course in Communications or Mass Media covering distorting mechanisms
Role Conflict and Integration	— Been a therapist or counselor for at least six months — Course in Social Work Theory and Practice

Small Group Certificate:

Concept of Groups	— Course in Group Dynamics Led a therapy or sensitivity group — Published article in professional journal on small group theory or practice — Course in Social Psychology covering small group theory
Individual as Group Member	— Course that included small group experience or practicum



Political Economy Certificate:

Traditional Economic Principles	Two semester course in Economics

Politics Certificate:

Classical Democratic Theory	— Course in American Government or Political Theory
Public Sector Decision-Making	— Course in Public Administration or Public Policy Analysis
Elections	— Have run for or served as campaign manager for contested election in district-sized election

Social Change Certificate:

No verifiable competencies at present. See above introductory paragraphs.

Departmental Courses and Requirements

Housing Certificate:

Few verifiable competencies at present. See above introductory paragraphs.

Urban Economy	— Course in Urban Economy

Community Change Certificate:

Few verifiable competencies at present. See above introductory paragraphs.

Urban Economy	— Course in Urban Economy
Financial Records	— College level accounting course; partial certification, Criteria 1 and 2 only

Competencies	**Courses or Job Titles**

Human Growth Certificate:

Human Development	— Courses entitled: Developmental Psychology; Child Psychology and Adolescent Psychology Child Psychology and General Psychology
Social Interaction	— Courses in Family Dynamics; Family Development, the Family
Models of Change	— Courses entitled Theories of Counseling, Theories of Psychotherapy
Social Problems	— Courses in Abnormal Psychology Social Deviance and Control; the Exceptional Child; Psychopathology
Delivery of Human Services	— Course entitled: History of Social Services, Social Service Administration
Research Issues and Methods	— Courses in Scientific Methods Research Design, Experimental Psychology that involves critiquing research design.
Comparative Group Experience	— Courses entitled: CulturalAnthropology, Comparative Culture, Cultural Group Differences, Social Group Differences, Society and Culture
Life States	— Courses in Infancy and Early Childhood Adolescene and Young Adulthood, Middle Adulthood; Aging, Adult Psychology
Theories of Development	— Courses entitled: Theories of Personality, Cognitive Development in Children, Perceptual Development, Cognitive and Learning Language Development, Socialization of Children, or Youth

Law Certificate:

No verifiable competencies at present. See above paragraphs.

Departmental Courses and Requirements

ADMISSION TO THE COLLEGE OF PUBLIC AND COMMUNITY SERVICE

Admission is determined primarily on a applicant's motivation, maturity, and desire t develop the skills and knowledge necessary fo effective work in public and community serv ice. If an applicant is seriously interested in career in this field, CPCS would welcome his her applications for admission. Though SA scores are not required for admission to CPCS they shall be submitted if the tests have bee taken previously.

To apply for admission to CPCS:

1 - Attend one of the Admissions Seminars hel at 100 Arlington Street any Tuesday morn ing at 9:00 A.M. or Wednesday evening a 5:30 P.M. (Sessions are not held the la three weeks of December or in July or Au gust).
2 - Complete the University Application form
3 - Submit transcripts from high school and an other colleges attended.
4 - Complete the special CPCS personal state ment form available upon request or at th Admissions Seminar.
5 - Submit two letters of recommendation.
6 - Personal interview (optional).

For further information about admission t CPCS call the University of Massachusett Boston Admissions Office and indicate a desi to apply for admission to the College of Publ and Community Service. The telephon number of the Admissions Office is: 287-810

COLLEGE OF PUBLIC AND COMMUNITY SERVICE PROCEDURE FOR WITHDRAWAL AND READMISSION

Procedure for Withdrawal

Official withdrawal is required of all st dents who wish to leave the University ter porarily (leave of absence) or permanently. Th procedure for withdrawal is as follows:

1 - Obtain an official withdrawal form from t Office of Academic Affairs.
2 - Speak with your Advisor about your plan
3 - Complete the form and return it to the Offi of Academic Affairs for final action. (The are two types of withdrawal: a) Withdraw with clearance for automatic readmission; Withdrawal without clearance for automa readmission.

Once the type of withdrawal has been determined by the Office of the Academic Affairs, you must get clearance from the Registrar's Office, Bursar's Office, and other services at the Harbor Campus as indicated on the form. You will not be considered officially withdrawn until this procedure has been completed. Failure to complete this withdrawal process can seriously jeopardize readmission at a later date. Transcripts will not be released by the Registrar until official withdrawal has been completed. Information on tuition rebates related to withdrawal is available through the Bursar's Office.

Leave of Absence

A leave of absence is technically called "Withdrawal with Clearance for Automatic Readmission" as noted above. Such a withdrawal must be approved by the Office of the Associate Dean for Academic Affairs at CPCS. A student with this type of withdrawal may be readmitted in any semester without further processing simply by submitting notice of intent to return in an Application for Readmission, available through the Registrar's Office, Harbor Campus. Applications for Readmission must be submitted by June 1 for the following Fall Semester, and by November 1 for the following Spring Semester.

Please Note: The clearance for automatic readmission applies only to readmission to CPCS, and not to any other college or program of the University. If a student has withdrawn without clearance to readmit, any readmission application will be processed in the same way as all new applications to CPCS.

ADMINISTRATION AND FACULTY

Patricia M. Ahlin
James Breedon
Harold R. Bronk
Barbara M. Buchanan
F. Coit Butler
Quentin Chavous
Marcy Crowley
William Clark
Frank Davis
Carmen Dillon
Ellen Feingold
Arlene Fingeret
Patricia Fleming
Badi G. Foster
Ann A. Fowler
Phyllis K. Freeman
Walter Grant
James Green
Michael T. Greene
Philip S. Hart
Nancy Jo Hoffman
Richard A. Hogarty
Bradley M. Honoroff
Lucy Horwitz
Emilie S. Ireland
Daisy Janey
Carter Jefferson
Patricia Jerabek
Sandra L. Kanter
Nancy N. Klinger
Daniel Leahy
Sharyn Lowenstein
David E. Matz
Paul McEvoy
Robert J. Rosenbaum
Paul Rosenkrantz
Rosamond R. Rosenmeier
David I. Rubin
Lynn Shapiro
Gary N. Siperstein
Beverly Smith
David A. Smith
Michael E. Stone
Stephen Subrin
Clark Taylor
Carole Upshur
Stanley R. Wachs
Elaine P. Werby
Robert B. Whittlesey
Anne Withorn

ASSESSMENT AND PLANNING FOR NEW LEARNING

Students entering the College of Public and Community Service are involved in an educational program which utilizes an innovative and relatively new approach to curriculum design: competency-based education. A competency-based system such as CPCS, requires that all students become self-directed learners. The ability to plan and to make decisions in one's life, career and education involves decision making and planning skills called Assessment.

In order to assist students to assume the responsibilities of a self-directed learner, the College has designed an entry program called Assessment required for all new students. This program is designed to accomplish the following objectives:

1 - To familiarize students with competency-based education as employed by CPCS.
2 - To introduce students to the curriculum (certificate, competencies, and degree requirements).
3 - To assist students in the identification of competencies which they have upon entry.
4 - To identify areas which require new learning.
5 - To develop skills in goal setting and planning.

Assessment is an integrated entry program which allows students to become involved in a variety of activities (courses, workshops, etc.) while in a highly supportive environment.

Example: Assessment Competency (Double Competency)

Requirements: This double-weight competency is required for completion of the general center requirements.

Rationale: A student competent in self-assessment and educational planning is able to live creatively with change and growth in a rapidly changing society. The ability to plan and to make decisions in one's life, career and education involves decision making and planning skills called assessment. Aspects of this process include: the identification of personal, educational and career goals, assessing one's learning capabilities (strengths and weaknesses), identifying resources, designing a realistic plan of action, evaluating the results, making revisions in your plans as needed, and executing the plans.

Competence in self-assessment and planning is essential to progressing successfully through the program at CPCS. A competency-based system, such as at CPCS, requires that all students become self-directed learners. This means that a student can make sound decisions about what kinds of learning to pursue and how. Since there are no required courses or prescribed sequences of learning, each student must develop an individualized learning plan which reflects his individual educational and career goals and the means by which these goals will be met. The learning plan includes both a general map of the total learning the student will undertake at CPCS and a carefully worked out plan for attaining competencies in the first six months. Moreover, the process must be repeated and plans must be reviewed and revised as the student progresses towards the degree.

The Assessment Competency is in essence a planning competency. Students will find these planning and self-assessment skills helpful in their progress through their program at CPCS. Furthermore, these skills will continue to be useful in short and long range planning in career development and learning and beyond the completion of the B.A. program at CPCS.

Competency: The student can make rational decisions about how to demonstrate competen-

cies based on realistic self-assessment and a reasoned plan of action.

ASSESSMENT

Competencies to be addressed: Two Assessment Competencies: Awareness and Educational Program Design.
Goals: "Assessment" is a special instructional program designed for all students entering CPCS. Its main objectives are: 1) to familiarize students with the competency-based curriculum at CPCS; 2) to assist students in relating prior learning to the CPCS curriculum, and in developing *a portfolio of prior learning* which will serve as a basis for competency demonstration; 3) to assist students in identifying areas of new learning that will be pursued at CPCS; 4) to assist students in developing planning skills needed to design an individualized educational program.
Assessment Program Design: Two weeks of intensive meetings including one Saturday session designed to familiarize entering students with CPCS. After two weeks students may enroll in up to two specially designed courses in selected areas of the curriculum. (These are designated elsewhere in the course booklet as *Assessment-related courses*. Assessment will continue meeting on Tuesdays, three hours per week, for the next five weeks. During the second half of the semester, Assessment students will continue to meet as a group or individually with the instructor during the scheduled Tuesday time block.
How to learn and demonstrate competencies: During the first 7 weeks students will learn to identify prior learning and to gather evidence of prior learning for competency demonstration. Students will also learn to identify needed areas of new learning and to relate prior learning to new learning in an over-all *Learning Plan*. A complete draft of the learning plan will be finished by the 7th week of Assessment. This Learning Plan is the basis for completing the two Assessment competencies. It will be finalized by each student during the registration period for the Spring Semester (late November-early December).
Time needed: Approximately 6-8 hours for the first 7 weeks; approximately 3-5 hours for the second 7 weeks.
Enrollment limits: 15 students per section.

ESSENTIAL SKILLS CENTER

The Essential Skills program is designed 1) to help a student assess his/her skills and to become aware of his/her levels of competence in reading, writing and mathematics so that the student can plan realistically for further instruction; 2) to assist other CPCS faculty to include instruction and evaluation wherever appropriate in the context of their CPCS courses; and 3) to provide intensive and specialized help in Essential Skills, through courses, workshops and in our growing tutorial program.

Although there is no requirement that students demonstrate competence in Essential Skills prior to taking on other work in the College, there is general agreement about the importance of becoming aware early of one's own reading, writing, and computational processes. Taking the necessary steps early to strengthen one's mastery in these areas means that all a student's learning at CPCS will proceed more enjoyably and efficiently.

CERTIFICATES:

Writing and Speaking Certificate

This certificate contains five competencies, at least three of which must be demonstrated in writing and at least one in speaking.

The writing certificate aims at competence in several different kinds of writing that a student may be called on to perform, either in public or community service settings or in your studies at CPCS. In gaining these competencies, a student should achieve a broad range of writing abilities. Wherever possible, the Center encourages students to combine their work on writing competencies with work in the General or Career Centers, and to relate the development of writing skills to their goals in the College.

All five are required.

1) Advocacy: Advocate a position on a subject of your choice (which is relevant to public and community service) with the intent of persuading an audience not yet convinced of your position, and summarize at least one position contrary to or different from the one you are advocating.
2) Analysis: Analyze a subject systematically (identify its component parts) and draw a valid conclusion from this analysis.
3) Communication of Personal Feelings/ Experiences: Express your own (or someone else's personal feelings and/or experiences to a specific audience of your choice, and identify your audience clearly.
4) Communication of Technical Career Knowledge to a Professional Audience: Express technical knowledge or ideas in your career area to an audience of professional people who are working in that same area.
5) Communication of Technical Career Knowledge to a General Audience: Express technical knowledge or ideas from your chosen career area in "everyday" language that is clear to a general or community audience.

Reading Certificate

This certificate has five required competencies. The competencies in the reading certificate are based on the process a competent reader uses in reading new or unfamiliar material. First you approach the material; then you read for initial comprehension; then you analyze for full comprehension; finally, you judge (or evaluate) the quality of the material.

In the Reading Certificate, students should first complete the Initial Comprehension competencies which may be gained through a standardized test or through the course, "Using Self-Analysis to Improve Your Reading and Writing Skills: A Process Approach." The other competencies (Comprehending the Work, Judging the Work Pre-Reading, Library Research) may be gained through reading done for general or career Center courses, as the competency index shows. They may also be gained through workshops or scheduled evaluations which the Essential Skills Center sponsors.

All five competencies are required.

Part One — Approaching the Work
Comp. 1:
"Pre-Reading" Judge the usefulness of a book encountered for the first time by "pre-reading" it.
Comp. 2:
"Library Research": Locate and make use of a library appropriate to your own research purposes.

Part Two — Reading the Work
Comp. 3:
"Initial Comprehension": Read materials encountered for the first time in order to:

a) locate the writer's main idea
b) locate the materials used to support or develop the main idea
c) identify the writer's attitude toward the material
d) identify the writer's attitude toward readers, or the writer's intended reading audience

Part Three — Comprehending the Work

Comp. 4: Recognize written texts as integrals structured by:

a) identifying the several parts (the beginning, the ending, titles, subtitles, key passages and illustrative material like graphs and charts) and factors (techniques essential to establishing and maintaining the effects the writer wishes to achieve) that make up for the whole, and
b) determine the function of at least one of these in relation to the whole (the way that the parts both complete and affect the whole).

Comp. 5:
"Judging the Work": Evaluate the strengths and weaknesses of written work, using specific criteria in your evaluation.

MATH CERTIFICATE

This certificate has two required competencies and a third — a double weighted competency — can be chosen from the remaining 3. The two required, Basic Math and Algebra, emphasizes a student's ability to solve problems using basic math and algebraic processes. The three advanced competencies — Statistics, Computer Science, and Public Service Math — reflect math skills and applications necessary to the various professional roles for which you are preparing. You are expected to choose an advanced option in consultation with your Career Center.

The first two are required; choose one from the last three:

1) Basic Math: Know the basic math which the average person needs to deal with everyday problems (add, subtract, multiply, and divide integer, fractions, decimals and percents) and with the CPCS curriculum.
2) Algebra: Can solve mathematical problems in the CPCS curriculum and in everyday life experiences which require algebraic skills.
3) Public Service Math: (a double competency) Know the math necessary to do the financial planning, decision-making and record-keeping for a Public Service Agency.
4) Statistics: (a double competency) Use the techniques of descriptive statistics to analyze data and to understand basic concepts of statistical inference.
5) Computer Science: (a double competency) Can solve computational or data processing problems by programming and operating a computer.

Example of a Competency: Judging the Work

The Judging the Work Competency found in the Reading Certificate is offered as an example of a complete A.L.M. Competency.

Judging the Work may be demonstrated with either non-fiction prose writing or with a work of literature. Choose one.

A. Competency title: Judging the Work — Non-fiction Prose

Rationale:

Throughout your career in public and community service, whatever your role, you will be judging written materials, both the work of others and your own that state and advance a point of view. When you are preparing material that makes a case for a point of view and that seeks to influence others, or when reviewing such material being prepared by others, you must have a frame of reference (or set of criteria) with which to judge the piece of work. It is suggested that Judging the Work (either with non-fiction prose or literature) is the last competency to be demonstrated in the Reading Certificate.

Competency:

The student can judge the quality of a piece of non-fiction prose writing using a set of specific criteria.

Criteria:

I. In judging the quality of the piece, you must address each of the following areas: a) development of the main point, b) accuracy of information, and c) approach to audience. Under each of the judgment headings listed below (a,b,c), you must choose at least one of the criteria listed as subpoints (1,2,3), or use a comparable criterion which you have substituted.
   a) Your criteria for judging the development of the main point should address at least one of the following:
      1. How consistently the author maintains the point of view.
      2. How well the author uses evidence, supporting materials, etc., to strengthen the main point or to make it clear.
      3. How logical the author's argument is.
   b) Your criteria for judging the accuracy of the information should address at least one of the following:
      1. How exact the author's statements of fact are.
      2. How careful the author's documentation is.
      3. How broad the range of sources of information used is.
   c) Your criteria for judging the quality of the author's relationship to audience should address at least one of the following:
      1. how appropriate the author's choice of language is, given his/her subject and audience.
      2. How effectively techniques are used to help the audience grasp the subject.
      3. The extent to which the nature of identity of the audience has been taken into account.

II. The evidence of the written work must not contradict your judgments.

Evaluation:

You will be provided with a range of materials from which to choose the one piece you are to judge. There are several examples in each of the following categories from which to choose: grant proposals, position papers, program reviews, proposed solution to problem and plan of action, and general science and humanities articles. Your judgment of the work may be presented in writing or orally.

B. Competency Title: Judging the Work — Literature

Rationale:

Judging a work of literature (a novel, short story, play or poem) is similar to judging a work of non-fiction prose writing. When either writing a literary work yourself, or reviewing another's work, you must have a frame of reference (or set of criteria) with which to judge the quality of the work. It is suggested that Judging the Work (either with non-fiction prose of literature) is the last competency to be demonstrated in the Reading Certificate.

Competency:

The student can judge the quality of a work of literature, using a set of specific criteria.

Criteria:

I. In judging the quality of the work, you must address each of the following areas in detail: 2) development of the main patterns of

meaning or main themes, b) effectiveness of the author's use of detail, c) effectiveness of the author's use of point-of-view. For each of these areas, you must choose at least one of the criteria listed as subpoints (1,2,3), or use a comparable criterion which you have substituted.

a) Your criteria for judging the development of the main patterns of meaning or main themes should address at least one of the following:
   1. How well the author has articulated the main pattern(s) of meaning or themes.
   2. How internally consistent the author's patterns of meaning or themes are.
   3. How well the minor themes relate to the major themes.

b) Your criteria for judging the author's use of detail should address at least one of the following.
   1. How significant are the author's chosen detail to the expression of his/her main subject(s) and/or theme(s).
   2. How appropriately placed the significant detail is to the expression of the author's main subject(s) or theme(s).
   3. How consistent the author's use of significant detail is within the work itself.

c) Your criteria for judging the effectiveness of the author's juse of point-of-view should adress at least one of the following:
   1. How carefully selected the point-of-view is, considering the author's main theme(s) and subject.
   2. How carefully the point-of-view is managed in order to affect the author's intended audience (reader or listener).
   3. How internally consistent the author's point-of-view is.

II. The evidence of the written work must not contradict your judgment.

Evaluation:

You will be provided with a range of materials from which to choose the one work you are to judge. There are several examples in each of the following categories from which to choose: a novel, short story, play or poem. Your judgment of the work may be presented in writing or orally.

All A.L.M. Competencies follow the format used for the Judging the Work Competency. The complete texts of all competencies are available in a separate publication. The summary statements for all A.L.M. Center Competencies are included here for reference purposes. The complete text of the competency must be consulted for evaluation purposes.

INSTRUCTIONAL PROGRAM

The following courses were offered in 1977-78. Offerings may vary from year to year.

COURSES FOCUSED ON READING & WRITING & SPEAKING CERTIFICATES

*STRETCHING: A New Course in Basic Math and Reading

ASSESSMENT-RELATED COURSE DESIGNED AS ENTRY POINT FOR **BOTH** NEW AND CONTINUING STUDENTS. BEGINS TWO WEEKS AFTER START OF SEMESTER.

Instructor: Arlene Fingeret

Competencies to be addressed: Basic Math, Initial Comprehension

Purpose of course: This course is designed for students who want an entire term to work on their basic math, students who are unsure of their ability to learn and do math, students who are interested in their own process of attacking and solving problems, and students interested in the relationship of reading and math, and in the relationship of their skills in reading and math to other skills they use every day and throughout life.

Goals: 1) Analysis of personal style of problem solving and ways in which our style and skills help or interfere with comprehension of reading materials and working with math problems; 2) Identification of needs for skills development in problem-solving, and practice with those skills; 3) Development of skills necessary for the Basic Math and Initial Comprehension competencies.

How to learn the competencies: Attend all classes, be prepared to spend time outside class reading, writing, and working on math assignments. Participate in all class discussions and exercises.

How to demonstrate the competencies: Participation in class and careful completion of homework assignments should lead directly to completion of the competencies. Evaluation tests for the math and reading competencies will be administered in class.

Time needed outside of class: 3-4 hours/week.

Helpful prior knowledge/skills/experience: Openness to learning about yourself and others; openness to learning about math.

Materials students should purchase: Students may wish to purchase a calculator, at an estimated cost of $10-$15.

Enrollment limitations: 25 students.

*HOW TO READ AND WRITE THI COMPETENCIES

ASSESSMENT-RELATED COURSE DE SIGNED AS ENRY POINT FOR **BOTI** NEW AND CONTINUING STUDENTS BEGINS TWO WEEKS AFTER START O SEMESTER.

Instructor: Sharyn Lowenstein

Competencies to be addressed: Reading Pre-Reading, Initial Comprehension; Writing Personal Experience, Analysis, Advocacy Values Certificate: What Are Values; Othe competencies which students may choose t work on.

Goals of Course: Reading the competencies choosing a particular one to work on, decidin what its content will be, and the way it could b written is a problem-solving process. In thi course we will look at several competencie and brainstorm the steps we might take to d them. Students will work on individual writin problems while completing the competencies We will learn the art of giving clear and positiv feedback and share our writing difficulties solutions and other ideas.

How to learn and demonstrate competen cies: Participate in all group discussion. Do a assignments. Be willing to share your exper ences.

Time needed outside of class: 3-5 hours maybe more, depending on the number c competencies you are working on.

Helpful prior learning or competency com pletion: This is a course specifically designe for incoming students.

Materials students should purchase and es timated total cost: *Writing Without Teacher* $2.00 (Peter Elbow); possibly one or two othe paperbacks, some xeroxing; totally $2-$3.

Enrollment limitations: 20. This course de pends upon the dynamics and support of a rela tively small class.

WRITING WORKSHOP

Instructor: Sharyn Lowenstein, Micha Greene

Competencies to be addressed: Studen should choose one or several competencie from the Writing Certificate; What Are Value Values and Choice. Others to be negotiate Reading Certificate (Selected competencies)

Goals of Course: 1) To explore our own wri ing style(s) and the conditions which both hel and hinder our ability to express ourselves i

ritten form. 2) To identify and develop those kills which are important to our writing. 3) To etermine what each of us really means when e say we like a piece of writing. 4) To learn ow to give constructive criticism and receive

low to learn and demonstrate competenies: Participate in all group discussions. Do all ie assignments.
ime needed outside of class: 3-5 hours, posbly more, depending on the number of cometencies you are working on.
laterials students should purchase: *Writing ithout Teachers* (Peter Elbow) $2.00; one or vo other paperbacks.
nrollment limitations: 15. This course deends upon the dynamics and support inherent a small group setting.
dditional information: (Purpose) Tired of riting alone? Can't see any progress in your bility to communicate on paper? This course ay well be appropriate for you. Writing Vorkshop is designed for students who feel aky about their writing, need new ideas/ eedback on their written work, and who want a upportive, stimulating environment in which write. This course is especially designed to ive you a sense of yourself as a writer. It will lso strengthen your reading/critical thinking kills.

LANGUAGE AND IDENTITY

N ASSESSMENT-RELATED ENTRY OURSE DESIGNED AS ENTRY POINT OR **BOTH** NEW AND CONTINUING TUDENTS.

nstructor: Michael Greene

ompetencies to be addressed: Writing Cerficate: Advocacy and Personal Experience; ole & Identity Certificate.
oals of Course: The goals are improved abily to listen, speak, read and write a general nprovement in the ability to communicate ith language. Language behavior often offers s clear and useful insights into our own identy and that of others. Language behaviors are lso frequently used as ways of defining roles. Ve will consider the relationship between lanuage and identity in a careful, systematic way.
low to learn and demonstrate competenies: The only way to learn something is to xchange time for experience. In this course ou will be able to experience yourself and thers as language users. During the course you vill be asked to do a good deal of reading and writing, listening and speaking. You will be asked to write and speak within the class as well as at home and in your workplace. You will also be asked to read and listen to the work that other people are doing. These experiences will provide you the opportunity to learn if you pay careful attention to them. Your learning will provide you the opportunities to demonstrate your competence within the class.
Field-related learning opportunities appropriate to gaining competencies: Any opportunities you have to read, write, speak or listen on the job can be used to learn new language skills and practice old ones. The course will specifically focus on ways to use your work for this type of learning.
Time needed outside of class: 4 hours/week.
Materials students should purchase: *Mother Night; Things Fall Apart; Tell Me a Riddle.*

*THE LANGUAGE EXPERIENCE: COMMUNICATIONS AND COMMUNITY

ASESSMENT-RELATED ENTRY POINT FOR **BOTH** NEW AND CONTINUING STUDENTS.

Instructor: Michael Greene

Competencies to be addressed: New Communications Certificate: Competencies to be announced; Writing/Speaking Certificate: Students select competencies.
Goals of Course: Participants will learn how to communicate more effectively with language. The goals are improved abilities to read, write, listen and speak.
How to learn and demonstrate competencies: The only way to learn is to exchange time for experience. In this course you will be able to experience yourself and others as language users. During the course you will be asked to do a good deal of reading, writing, listening and speaking. You will be asked to write and speak within the class as well as at home and in your workplace. You will also be asked to read and listen to the work that other people are doing. These experiences will provide you the opportunity to learn if you pay attention to them. Your learning will provide you the opportunity to demonstrate competencies within the class.
Field-related learning opportunities appropriate to gaining competencies: Any opportunities you have to read, write, speak or listen on the job can be used to learn new language skills and practice old ones. The course will specifically focus on ways to use your work for this type of learning.
Time needed outside of class: 4 hours per week.
Materials students should purchase: *Words at Play; Mother Night; Things Fall Apart.* Estimated cost of $7.

BLACK WRITERS AND THE WOMEN'S EXPERIENCE

Instructor: Emily Steele

Competencies to be addressed: Reading: Comprehending the Work, Judging the Work; Writing: Analysis, experiential writing; Role & Identity: students can select the competency(ies).
Goals of course: 1) To look at how Black women are seen by Black writers. 2) To examine some of the choices made by Black women themselves in their writing. 3) To look at the roles Black women play in novels, short stories, poems, plays.
How to learn and demonstrate competencies: Attend class regularly and participate in discussions. Complete assigned readings. Complete a project of student's choosing (to be discussed with the instructor).
Time needed outside of class: 3 hours/week.
Helpful prior learning or competency completion: All students should have completed both Initial Comprehension and Pre-Reading (Reading Certificate).
Materials students should purchase: Students may want to purchase some materials for their own use. Copies of all assigned readings will be on reserve in the CPCS Library.

*HOOKING INTO THE COMPETENCY SYSTEM: UNDERSTANDING THE READING AND WRITING CERTIFICATES

AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED PRIMARILY FOR NEW STUDENTS (SEE BELOW UNDER ADDITIONAL INFORMATION). CLASSES BEGIN TWO WEEKS AFTER START OF SEMESTER.

Instructor: Sharyn Lowenstein

Competencies to be addressed: Reading and Writing Certificates
Goals of courses: This course is designed primarily for students entering CPCS who wish to improve reading and writing skills. Self Diagnostic Tests in Assessment should help you decide whether you need this course. Our specific focus will be on understanding the

Reading and Writing certificates and gaining reading and writing competencies. We will begin with the "Initial Comprehension" competency in the Reading Certificate. As an extension of Assessment, we will also spend time looking at what a competency-based system is and how to survive in it.
How to learn and demonstrate competencies: Two kinds of participation from class members is necessary: asking questions and doing writing/reading assignments both within and outside of class.
Time needed outside of class: minimum of 3-5 hours/week.
Materials students should purchase: *Writing Without Teachers*, Peter Elbow (paperback). Some xeroxed materials at a total cost of $2-$3.
Enrollment limitations: 20
Additional information: Continuing students might want to join, but should see Sharyn Lowenstein before registering. Students who are not interested in working on the Initial Comprehension competency in the Reading Certificate are not advised to join. However, you should get in touch with Sharyn Lowenstein before making a final decision.

***READING AND WRITING**

AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER START OF SEMESTER.

Instructor: Patricia Cumming

Competencies to be addressed: Writing Certificate: Analysis, Personal Experience, Reading Certificate: Initial Comprehension, Comprehending the Work, Judging the Work.
Goals of course: The class will initially focus on writing, reading, and discussing students' work (autobiography, poems, essays, stories); as the term goes on, we will read and discuss published writing as well. Reading and writing skills will be centered on a careful and in-depth understanding of short pieces.
How to learn and demonstrate competencies: Write, read, come to class, participate in discussions.
Time needed outside of class: 3-5 hours/week.
Materials students should purchase: $5.00 for an anthology. Students should be prepared to bring 5-10 copies of their writing to class (xerox, dittos, or carbons).
Enrollment limitations: 20 students.

***LANGUAGE AND COMMUNICATIONS THEORY: A PRACTICAL EXPERIENCE**

AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS.

Instructor: Michael Greene

Competencies to be addressed: Writing Certificate: Analysis, Experiential Communication; Communications Certificate
Goals of course: Participants will learn how to communicate more effectively with language. The goals are improved abilities to listen, read, speak and write.
How to learn and demonstrate competencies: The only way to learn is to exchange time for experience. In this course you will be able to experience yourself and others as language users. During the course you will be asked to do a good deal of reading, writing, speaking and listening. These experiences will provide you the opportunity to learn as you pay attention to them. Your learning will provide you the opportunity to demonstrate the competencies through class work.
Field related learning opportunities appropriate to gaining competencies: Any opportunity you have to read, write, speak or listen on the job can be used to learn new language skills and practice old ones. The course will specifically focus on ways to use your work for this type of learning.

FANTASY AND THE WRITING PROCESS

Instructor: Sharyn Lowenstein and Lynn Shapiro

Competencies to be addressed: Writing Certificate: Experiential Communication, Advocacy, Analysis; Small Groups Certificate: Individual as a Group Member; Values Certificate: Values and Choice.
Goals of course: 1) To increase our ability to interact with members of a group dealing with personally meaningful ideas; 2) to develop our creative capacity and incorporate our ideas in our writing by using fantasy and group interaction as the vehicle.
How to learn and demonstrate competencies: Come to all sessions. Be willing to share thoughts and ideas.
Time needed outside of class: Depends on each student's needs. This should be negotiated with instructors.
Materials students should purchase: *Writing Without Teachers* by Peter Elbow.
Enrollment limitations: 12 students. Contac instructors before registering.
Additional information: It is our belief that a of us have the capacity to be creative, given supportive and stimulating environment. Stu dents who want to look at aspects of their crea tive selves within this setting might well cor sider joining. Anyone who is interested mu see either Lynn Shapiro (ext. 282) or Shary Lowenstein (ext. 288) before registering.

WRITING AND REVISING

Instructor: Sharyn Lowenstein

Competencies to be addressed: Entire Writin Certificate; Reading Certificate; Comprehenc ing and Judging the Work; other competencie to be negotiated.
Goals of course: This course is specificall designed to help you become your own edito Therefore, the goals are: 1) to learn your ow individual editing styles; 2) to explore gramma and logic to the extent that your writing re quires.
How to learn and demonstrate competer cies: 1) Do all assignments; 2) participate in a discussions; 3) be willing to share you thoughts and ideas.
Time needed outside of class: 5-7 hours/wee depending on the amount of interest and tim you have available.
Helpful prior learning or competency com pletion: Participation in at least one other wri ing workshop within the last year.
Materials students should purchase: *Tellin Writing*, Ken Macrorie; *English 2600*, Josep Blumenthal; approximate cost $6-$7.
Enrollment limitations: 20 students to pr vide enough time for individuals to read an work on their papers. See instructor before re istering.
Additional information: This course is f people who have done some free writing an aren't too worried about getting stuck. It is f people who now feel ready to focus on the mechanics of their pieces (spelling, gramma punctuation, sentence structure); 2) logi coherence of their work (appropriate order ideas, smooth transitions, inclusion of intr duction and conclusion, sound arguments an supportive evidence; 3) expansion of their ide into longer and more sophisticated papers; condensing of their ideas. Students intereste should see instructor before registering.

ROWING UP: ON ECOMING AN ADULT

nstructor: Frank Davis and Emilie Steele

ompetencies to be addressed: Human rowth Certificate: Life Stages; Values Cert.: hat are Values?, Values and Choice; Writing d Speaking Certificate: Experiential Comunication, Analysis; Reading Certificate: omprehending and Judging the Work. Not all udents will complete all competencies.
oals of course: 1) to discuss the physical, cial, and emotional issues faced in adultood; 2) to consider various theories of adult velopment; 3) to think about the implications adult development for the helping profesons.
ow to learn and demonstrate competenes: Students will be asked to complete a projt such as life history about themselves or meone they may choose to interview. They ill be asked to analyze the life history from a velopmental point of view. Reading will be signed. Students will be asked to write short pers and do in class exercises in preparation r completion of their projects. CLASS ATENDANCE IS VERY IMPORTANT!
ime needed outside of class: 3-5 hours/ eek.
elpful prior learning or competency cometion: There are no special prerequisites for is course, although students who have not btained the Reading competency, "Initial omprehension", should see Emilie Steele bere registering for the course.
laterials students should purchase: To be nnounced — approx. $15.
nrollment limitations: 40 students.
dditional information: As adults, all of us ing something special to any thinking or recting we do about adult development. This is ecause our lives are unique and at the same me similar. It will be the intent of this course compare the theoretical ideas of people such Freud, Erikson, Loevinger, and Sheehy to e reality, as each of us sees it, of growing up. this way we will be learning about ourselves well. We believe that an understanding of ulthood in both the personal and the general nse is a very important tool for those of us ho see ourselves in the helping professions. e suggest that students taking this course also ke *Education for the People: Community ducation for Adults*. Listed under the ALM & G&D Centers.

EDUCATION FOR THE PEOPLE: COMMUNITY EDUCATION FOR ADULTS

Instructors: Arlene Fingeret and Nancy Klinger

Competencies to be addressed: Human Growth Certificate: Preventive Educational Programs, Theories of Development; Writing and Speaking Certificate: Analysis or Advocacy, Technical Communication.
Goals of course: The Greater Boston area is filled with programs calling themselves "community education", "adult education", or "community schools". What do these terms mean? What community education programs exist in Boston? How do they meet the learning needs of adults? In this course, we will explore these questions, and through that exploration meet the following goals: 1) Define community education; 2) Examine the learning needs of adults and theories of adult learning; 3) develop skills in program development and evaluation; 4) Refine writing skills in advocacy, analysis and report writing.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER HUMAN GROWTH AND DEVELOPMENT

MATH COURSES

BASIC MATH

Instructors: Section 1: Paul McEvoy; Section 2: Lucy Horwitz

Competencies to be addressed: Basic Math
Goals of course: The course covers all skills needed to complete the basic math competency. Assignments of exercises will be made in each class for students to do outside of class and then to discuss in class. Regular attendance is important.
How to demonstrate the competencies: There will be a test in Basic Math at the end of the course.
Time needed outside of class: Students should have one hour of study time per class meeting.
Materials students should purchase: No textbook is required and written materials will be provided in class by the instructor. Students will be encouraged to purchase a calculator at an estimated cost of $10 to $15.
Enrollment limitations: 30 students — section 1; 20 students — section 2.

ALGEBRA

Instructor:

Competencies to be addressed: Algebra
Goals of course: The course covers all skills needed to complete the algebra competency.
How to learn and demonstrate competencies: Exercises will be assigned for students to do outside the class and then discuss in class. Regular attendance is important.
Time needed outside of class: 2-3 hours/ week.
Helpful prior learning or competency completion: Basic Math.
Materials students should purchase: No textbook is required. Written materials may be provided by the instructor. The student may wish to purchase a calculator at an estimated cost of $10 or $15.
Enrollment limitation: 30 students.

***THE ALGEBRA CONNECTION**

AN ASSESSMENT-RELATED ENTRY COURSE FOR **BOTH** NEW AND CONTINUING STUDENTS.

Instructors: Paul McEvoy and Frank Davis

Competency to be addressed: Algebra
Goals of course: This algebra course is designed for students who have difficulty learning mathematics. It will operate at a slower pace than usual and will use group techniques to help students explore their difficulties in learning math.
How to learn and demonstrate the competencies: Participate in class discussions, turn in homework, do examinations.
Time needed outside of class: 2-3 hours/ week.
Helpful prior learning or competency completion: Basic Math.
Enrollment limitations: 25 students.

COMPUTER SCIENCE

Instructor: Frank Davis

Competencies to be addressed: Computer Science Competency
Goals of course: The goals of this course are: 1) that the student obtain an understanding of the operating structure of computing systems; 2) that the student be able to operate and program a computer using the BASIC (Beginners All-Purpose Symbolic Instruction Code) programming language.

How to learn the competencies: The course is designed to give students a "hands' on" environment for acquiring programming skills and understanding of computing systems. While part of the course will be in the lecture-discussion format, the remaining part will involve the student in programming problems requiring the operation of a computing system. Students in this course will have access to the UMass CDC Cyber Timesharing System for this course.
How to demonstrate the competencies: Evaluation for this competency consists of: 1) a written or oral examination, or written paper, which demonstrates a student knowledge of the operating structure of computing systems; 2) a programming project which demonstrates the student's capability of constructing a working computer program.
Time needed outside of class: Students should plan on needing approximately 1-2 hours/week outside of class to do work on programming problems at the Columbia Point Campus.
Helpful prior learning or competency evaluation: Students should have mathematical skills on the level of the Basic Mathematics Competency. Algebraic mathematics skills will be helpful but are not necessary.
Materials students should purchase: Students will be required to purchase the CDC Cyber Timesharing Operating Guide and CDC Basic Programming Manual at an estimated cost of $5. Students may also be required to pay a $5 laboratory fee for operating the Cyber Timesharing System.
Enrollment limitations: Limited to 30 students.
Additional information: Useful in relation to Evaluation Design and Implementation competencies in Management Section of Community Change Certificate.

STATISTICS

Instructor: Lucy Horwitz

Competencies to be addressed: Statistics
Goals: To prepare students for the competency. To give students a reading knowledge of statistics and the experience of handling data.
How to learn the competencies: Students will be assigned exercises which will be discussed in class. Quizzes will be used to measure progress. Regular attendance is important.
How to demonstrate the competencies: The competency will be demonstrated in *two parts*: a *test* and a *project*. The test will be given at the end of the course and will give the student a chance to demonstrate his understanding of statistical concepts as they appear in a variety of published sources. The project will give the student a chance to show that s/he can use some of the knowledge gained in the course to analyze some data that s/he is interested in.
Field education opportunities appropriate to gaining competencies: If the student wishes to use data arising from a field situation for the project, s/he may do so, but a field situation is not necessary.
Time needed outside of class: The student should plan on spending one hour outside of class for each hour spent in class and a few additional hours preparing the project.
Helpful prior knowledge/skills/ experience: Students should have completed the Basic Math competency before doing statistics. A knowledge of simple equations is helpful though the problem-solving part of the Algebra competency is not necessary.
Materials students should purchase: All materials will be supplied by the instructor. An inexpensive calculator (costing between $10-$15) will be a help, but not essential.
Enrollment limitations: 30 students.
Additional information: The Statistics competency is useful in relation to the Research and Testing competencies in the Human Growth and Development Certificate.

PUBLIC SERVICE MATH

Instructor: Paul McEvoy

Competencies to be addressed: Public Service Math
Goals of course: Prepare students to function effectively in a public service agency by providing both mathematical skills and experience with agency budgets, etc.
How to learn the competencies: Attend class, do the homework, take the take-home examination, do a project such as one concerned with Agency Real Estate considerations in purchase of property, etc.
How to demonstrate the competencies: Attain a score of 85% or better on the take-home exam, prepare 70% of the homework correctly, complete a project which is judged adequate by the instructor.
Field education appropriate to gaining competencies: Agency bookkeeping and administration.
Time needed outside of class: 4-6 hours/week
Helpful prior knowledge/skills/experience: Work in agencies concerned with fiscal matters; work in a real estate agency or housir agency.
Materials students should purchase: An i expensive calculator costing between $15-$2
Enrollment limitations: 30 students. Cla discussion requires a limit on enrollment.
Additional information: Useful in relation Financial Tasks and other competencies Community Change Certificate.

APPLIED LANGUAGE AND MAT TUTORING PROGRAM: STUDENT WHO ARE TUTORING — MATH AN READING

Instructors: Arlene Fingeret and Sharyn Lov enstein

Competencies to be addressed: To b negotiated with instructors.
Goals: Tutors will develop skills in diagnosir reading, writing, and/or math strengths ar weaknesses of students, planning and carryir out meaningful lessons, evaluating student ar tutor progress, preparing and using careful re ords, and possibly in areas of program d velopment and administration.
How to learn the competencies: Participatic in training prior to and during tutoring partic pation in direct individual supervision of tuto ing, responsible maintainance of at least or direct tutoring relationship, and record-keepir and evaluation of performance are required.

Students and tutors are expected to atter regular sessions, do some outside work ar preparation, and to jointly take responsibili for planning and on-going evaluation of pro ress. Openness and receptivity are importan
How to demonstrate the competencie Negotiable with instructors.
Field education opportunities appropriate gaining competencies: The tutoring progra provides a potential field opportunity for tuto to develop and demonstrate competencies many areas of the college curriculum. Specif goals will be negotiated.
Time needed outside of class: Depends on th goals of individuals. Negotiated with instru tors.
Helpful prior knowledge/skills/ experienc Competencies at appropriate levels in readin writing, or math. Experience in social servi agencies, especially in teaching or tutoring helpful, but not necessary. Good communic tion skills.
Enrollment limitations: By permission of i structors only.

dditional information: The Tutoring Pro-ram, while geared to competency attainment r students and the tutors, is a complement to her forms of instruction in the College.

It can provide 1) a foundation in Essential kills on which to build, as well as 2) an extra imulation/dialog/challenge for students in-erested in further exploring their language kills, even though they have already attained e competencies. Students working as tutors ill have the opportunity to explore some as-ects of adult education, the role of teacher, nd the teaching-learning process. Tutors can ach 1) math, or 2) reading and writing, or 3) oth.

For questions and registration, contact either haryn Lowenstein (for reading, writing) or rlene Fingeret (for reading, writing, or math).

UTORING PROGRAM: STUDENTS EING TUTORED: READING, WRIT-NG, MATH

nstructors: Arlene Fingeret and haryn Lowenstein

ompetencies to be addressed: To be egotiated with instructors. Can include all pplied Language and Math Center Com-etencies, as well as competencies of other enters which involve reading, writing, math r critical thinking.

oals: Students will identify skills they already ave and can build on, identify skills they need develop, and will develop those skills.

Reading Tutoring

Tutoring in reading is appropriate for stu-ents who: 1) are lacking the Initial Com-rehension competency in the reading certifi-ate; 2) are experiencing difficulty in their read-ng for specific courses (but may have one or ore reading competencies); or 3) are in-erested in learning more about their own read-ng and critical thinking processes. Students ill develop skills in reading such as: 1) for-ulating the main idea of a piece of writing; 2) dentifying the evidence used to emphasize and evelop the main idea; 3) following the logic of n author in connecting pieces of evidence to ach other; 4) determining how the author's riting style furthers or hinders his line of easoning; and 5) identifying the tone and pur-ose of the author. Tutoring is on an individual asis and will be scheduled as much as possible or the student's convenience. Emphasis is on ying the reading skills to work being done hroughout the College.

II. Writing Tutoring

Tutoring in writing is appropriate for students who are having difficulty writing for course assignments and competencies, who want some help identifying areas to work on and some direction for improving their writing, and students who want to explore their writing process. If there is sufficient interest, a group of students may work together with a tutor, forming a writing group to share feelings and experiences with writing, and to help each other develop their skills. Students will develop skills in writing necessary for meeting the criteria of the Writing Certificate. They can also explore their own writing style, their feelings and skills, and ways in which they may develop those skills through writing for other centers in the College. Tutoring in writing is also on an individual basis, scheduled for the convenience of the student and tutor. The emphasis is on tying the writing skills to work being done elsewhere in the College, especially in courses.

III. Math Tutoring

Tutoring is appropriate for students who: need some individual in-depth attention to their problems with math; need further work to attain the competencies, but not enough to warrant an entire course; find it impossible to schedule a course; need help with the math in relation to a specific course (a math course or another course using math). Individual tutoring is scheduled for the convenience of the student and tutor.

Students will develop skills in math necessary for meeting the criteria of the Basic Math and Algebra competencies. They can also explore their feelings about math, and ways in which those feelings interfere or help their own learning process. Tutoring in math can follow one of two models:

1. Individual assigned tutoring relationships
2. Math lab for independent work with a group of students assigned to a tutor as a resource person.

The Math Lab is set up to help students work independently on learning math skills. This is an alternative to an individual tutoring assignment. Materials and tutoring are available as necessary. Students work with a tutor setting up a learning plan, identifying goals and materials, and then work at their pace through the term, toward the competencies. Many students will prefer to do the work at home, using the program times to check their progress with a tutor, or to get new materials, as they learn the math. Others may use the time as actual working time, in the Tutoring Center. Students must be willing to set up and work on goals identified as appropriate, be able to work independently, be able to ask for help, and be willing to participate in record-keeping of their progress.

In all facets of the Tutoring Program, materials and method are negotiable. Emphasis is always on tying the reading, writing, and math skills to jobs and to work in progress within the college. Students and tutors are expected to attend regular sessions, do some outside work and preparation, and to jointly take responsibility for planning and on-going evaluation of progress. Openness and receptivity are important.

How to demonstrate the competencies: Negotiable with instructor.

Time needed outside of class: Depends on the goals of individuals. Negotiated with instructors.

Enrollment limitations: Enrollment is by permission of instructors only. For registration for reading and writing tutoring, see Sharyn Lowenstein or Arlene Fingeret. For registration for math tutoring, see Arlene Fingeret.

Additional information: The Tutoring Program, while geared to competency attainment for the students and the tutors, is a complement to other forms of instruction in the College. It can provide 1) foundation in the Center for Applied Language and Math on which to build, as well as 2) an extra stimulation/challenge/dialog for students interested in further exploring their language skills, even though they have already attained the competencies.

For questions of registration, see Arlene Fingeret (reading, writing, math) or Sharyn Lowenstein (reading, writing).

CENTER FOR GENERAL EDUCATION

All students must earn five certificates in the Center for General Education in order to graduate. The student is required to complete at least one certificate in each of the Center's three curriculum groupings: Cultural Studies, Individual and Society, and Institutions. The remaining two may be distributed among the groupings as the student wishes.

CERTIFICATES:

CULTURAL STUDIES GROUPING

Values Certificate: Values, their history and consequences, often are said to be the subject of liberal arts education, but perhaps because we say we are always teaching about values, we tend not to teach about them explicitly. This Certificate addresses values explicitly, and requires that a student be competent in distinguishing or selecting out the values which inform personal and public life — policies, institutions, individual and group acts, and even physical objects. It also requires that a student demonstrate competence in understanding and testing one's own values.

4 out of the 6 are required.

1) **What Are Values?**
   A) Definition of Values: Explain and illustrate by one example (150 words) either the definition of values given by the Culture Center or your own definition.

   B) Given a social issue, narrative and/or function/event, pick out examples of each of these six different kinds of values:

   1. Personal or individual value
   2. Group value
   3. Social value
   4. Value associated with an historical era
   5. Explicit value
   6. Implicit value

2) **Values & Choice:** Analyze a significant individual choice in which values are in conflict.
3) **Values & Work:** Describe the history of and interpret the values associated with a particular job in the past and today.
4) **Bureaucracy & Moral Responsibility:** Define and analyze the extent and limits of an individual's responsibility in institutional and social settings.
5) **Myth:** Portray and interpret a significant myth that recurs over a period of time.
6) **Value Change: Past and Present:** Analyze the process of change in a significant value in relation to a social institution *or* social issue over time.

Comparative Culture Certificate: Workers in public or community service must deal with people from a wide range of cultural traditions. Their ability to recognize and take into account the customs, beliefs, assumptions and values of those people is often responsible for a major proportion of the success with which they carry out their service.

An understanding of the nature of culture and its relationship to human behavior is an invaluable tool in gaining a better understanding of the real needs and desires of people, in avoiding the pitfalls of ethnocentric judgments and in assisting public and community service organizations to develop better policies and procedures which provide genuine service to their clientele.

While the Certificate does not represent an extensive knowledge of a variety of cultures, it does require experience in cultural comparison as a ways of assuring at least a sensitivity to and recognition of the range and variety of cultural responses and the relation of any particular response to the culture of which it is a part.

Competencies one and two are required.

1) **The Notion of Culture:** Can utilize the notion of culture in efforts to understand the ways people behave.
2) **Comparative Cultural Contexts:** Can examine, both comparatively and within their own cultural contexts, the perceptions and reactions of differing cultural groups to a particular human concern.
3) **(Double Competency) History and Culture:** Can explain a particular state of affairs in terms of the sequence of events which brought it about, with particular emphasis on the cultural perspectives of the people involved.
4) **Double Competency) Social Policy and Culture:** Can analyze the cultural dimensions of social policy.

Basic Foreign Language Certificate: The ability to communicate in a language other than one's own is desirable both as a useful tool for exchanging information and ideas with persons who speak another language and as a way of broadening one's perspective on the world.

In addition to this general desirability it is specifically valuable in public or community service since it allows one to better serve that portion of his clientele who speak the language one has acquired — both as a tool to discover the needs and desires of persons who are unable to convey them in English and also insofar as it contributes to one's awareness of the culture represented by the language and one's ability to take that culture into account as one serves in a public and community context.

This certificate represents the ability to communicate in a language other than English about personal circumstances, needs and desires without recourse to English. The person awarded this certificate will be able to extract such information from a native speaker who knows no English and will be able to provide basic information, simple interpretation or helpful referrals.

The Certificate may be awarded in any modern language agreed upon by The Center.

All four parts are required:

1) **Elementary Understanding.** Can gain sufficient understanding from a spoken or written communication to be able to establish its general topic or theme, as well as the content of a variety of simply worded questions or statements which may be included.
2) **Elementary Speaking:** Can speak well enough to make requests, pose questions, or give directions of an elementary nature, and to pronounce recognizably any word one hears.
3) **Basic Conversation:** Can speak the language in a manner that may be understood by a native speaker and can understand the language spoken by such a speaker.
4) **Basic Reading and Writing:** Can write simple descriptions, explanations or instructions whic can be understood by a native speaker and can read material of a similar nature.

INDIVIDUAL AND SOCIETY GROUPING

The theme throughout these two certificates is the study of the individual's identity and interaction in various social contexts.

Role and Identity Certificate: This certificate focuses on the perceptions and attributions that members of one group hold towards members of other groups.

Four out of the seven are required.

1) Can describe the principle features of one's personal identity based on roles played in significant groups.
2) Can explain how perceptions about roles rights and obligations affect interactions between groups. NOTE: You may do competency 2 **or** 3 but not both.
3) Can explain how one social group develops and maintains an attitude toward another social group.

Can describe how conflicting roles can be resolved and integrated over time.
Can choose an appropriate technique for changing an individual's role or identity, with attention to both methodology and ethical concerns.
Can devise strategies to reduce effects of social mechanisms that distort perceptions of self and others.
NOTE: You may do competency 6 **or** 7 but not both.
Can analyze ways in which mass media can influence one's sense of identity.

mall Groups Certificate: This certificate fo-uses on the theory and analysis of small group ehavior.

Four out of the six are required.

The Dynamic Concept of Groups: Differentiate between the social psychological concept of the term "group" and other common or technical meanings of the term.
Individual as a Group Member: Evaluate yourself as a group member, including feedback from other group members, and identify the roles you fulfill in the group and your behavior in each role.
The Dynamics of Intrapersonal Change: Explain, according to a selected learning theory, how an individual's behavior is changed by participation in an experiential group whose emphases are personal and/or interpersonal growth.
The Dynamics of Group Development: Describe the development of a group according to a selected theory or model.
Analysis of Small Group Behavior: Analyze the behavior of an on-going group.
Methods of Studying Small Groups: Compare different research approaches to the study of small group behavior.

'ommunications Certificate: This certificate ocuses on interpersonal communication skills, ommunication between cultural groups, and ractical applications of communications skills n organizational settings and media.

Four out of the six are required.

Human Communications: Sending: Can analyze one's own communication style as a "sender" to determine changes needed to communicate effectively in different situations.
2) **Human Communications Receiving:** Can analyze one's own and others' role as a "receiver" in the communication process.
3) **Socio-Cultural Factors in Interpersonal Communication:** Can analyze socio-cultural factors that affect interpersonal communication.
4) **Communications in Organizations:** Can use theory of organizational communications in an organization.
5) **Mass Media:** Can analyze how the organizational structure and setting influence the products of a mass media institution.
6) **Communications Project:** Can design and implement a media project to promote change for a client group.

INSTITUTIONS GROUPING

Social Change Certificate: This certificate focuses on the distribution and use of power in society as well as skills and behaviors which help produce changes in that distribution. Research and organizing skills are emphasized.

Four out of the five are required.

1) **Neighborhood Research and Observation:** Use basic research and observation skills to gather data and test a hypothesis about a neighborhood of your choice in Boston.
2) **Local Governmental Structure:** Identify and describe the local governmental structure of a community. Discuss the relations of key factors in local government to other interests in relation to a specific social change effort.
3) **Analysis of Power I** (first part of double competency): Plan a political strategy designed to achieve a social change objective in a local community.
4) **Analysis of Power II** (second part of double competency): Plan a political strategy designed to achieve a social change objective in a local community.
5) **Action Organizing:** Develop participate in and evaluate an organizing effort for addressing a community issue and problem.

Political Economy Certificate: As the title suggests, the primary concern of this certificate is the relationship between political and economic behavior, if based on an understanding of traditional economic theory, and an emphasis on the impact and efficacy of public sector economic policies.

Four out of six are required.

1) **Traditional Economic Concepts:** Apply basic economic concepts to understand and interpret current events.
2) **Economic Distribution:** Apply traditional economic theory to explain important social problems.
3) **Public Economy:** Evaluate the effects of state or city revenues and expenditures on residents of various income levels.
4) **Economic Allocation:** Trace the effects over time of a change in supply, demand, or price of a good or service in the private sector on consumers and suppliers.
5) **Alternative Economic Institutions:** Evaluate economic institutions outside or counter to traditional American economic institutions.
6) **Local Economic Data and Research:** Develop and interpret economic profiles of local communities.

Politics Certificate: This certificate focuses on an understanding of classical democratic theory, an understanding of the distribution and use of political power, on public sector decision-making, as well as elections and legislative process.

Four out of the five are required.

1) **Classical Democratic Theory:** Show how each of 12 concepts (outlined in the competency statement) of democratic governance can be used to explain the distribution and use of political power in relation to a given event or social issue.
2) **Public Sector Decision-Making:** Can analyze the political process by which decisions are made in the public sector of American society.
3) **Theories of Decision-Making:** Can apply different theories to the decision-making processes in the public sector.
4) **Elections:** Understand and be able to use basic analytic and organizational skills in a municipal or other local election.
5) **Legislature:** Describe the major steps by which a particular bill becomes a law in Massachusetts.

SAMPLE COMPETENCY STATEMENT: LOCAL GOVERNMENTAL STRUCTURE

"Local Governmental Structure" is compe-

tency #2 within the Social Change Certificate and is offered as an example of a General Center competency.

Competency: Identify and describe the local governmental structure of a community. Discuss the relations of key actors in local government to other interests in relation to a specific social change effort.

Standards:
1. The community of concern should be comprised of at least a 25,000 population.
2. The social change effort should be broad enough to include key actors in criteria (c) and (d).
3. The information must be accurate and sources noted.

Example of Evaluation: School desegregation is a major social change effort now underway in Denver. Identify and describe the local governmental structure of this community in relation to other interests concerned with this particular issue of social change.

Criteria:
1. Specify the nature and dimensions of the desired social change in the community of concern.
2. Identify and describe the local government structure to include:

Organizational Chart	a. construction of a chart, or other appropriate description of the formal local government structure,including lines of authority and responsibility;
Sociometry	b. specifying key actors and describing the informal processes of decision-making within the local government;
Vertical Integration	c. a description of the relationship between local politicians and an estimation of the influences of each group on the other;
Horizontal Integration	d. a description of the relationship of the key factors in local government to major economic interests, other dominant community institutions, agencies or authorities, and to community leaders or activists.

INSTRUCTIONAL PROGRAM

The following courses were offered in 1977-78. Offerings may vary from year to year.

Institutions Grouping

Certificates: Politics, Political Economy, Social Change

*UNDERSTANDING DEMOCRATIC THEORY

THIS COURSE IS AN ASSESSMENT-RELATED ENTRY COURSE, DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER THE START OF THE SEMESTER.

Instructors: David Smith and Dick Hogarty

Competencies to be addressed: Politics Certificate: Democratic Theory
Goals of course: To develop a familiarity with the basic structure of government in the United States, an understanding of the theoretical basis on which those structures have been built, and an introduction to the basic techniques of political analysis. The course is a particularly useful entry point for students working on the Politics Certificate; much of the material also serves as background for the Law Certificate.
How to learn and demonstrate competencies: Readings and seminar-style classes — a group exercise will be developed to demonstrate the competency during the class.
Field-related learning opportunities appropriate to gaining competencies: Local political activity.
Time needed outside of class: 3 hours/week
Materials students should purchase: To be announced.
Additional information: Related follow-up course in second 7 weeks is "Public Sector Decision-Making" (Hogarty). See full description under *Institutions Grouping*. Interested students should register for full sequence.

*ORGANIZING FOR ACTION

THIS IS AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER THE START OF THE SEMESTER.

Instructor: Phil Hart

Competencies to be addressed: Social Change Certificate: Action Organizing; Community Change Certificate: Action Organizing; Writing Advocacy.
Goals of course: Course is designed for students who have had some experience in community and action organizing. Course will help students to identify previous experience in action organizing and to prepare materials for competency evaluation. Course will also help students to review and evaluate the effectiveness of organizing efforts which have a public and community context.
How to learn and demonstrate competencies: Attend class, do readings, engage in an action project, and report on such a project.
Field-related learning opportunities appropriate to gaining competencies: Can be arranged through instructor.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: Previous experience in action organizing is required. Research, Local Government Structure, or Power Analysis Advocacy in Writing/speaking would be helpful.
Materials students should purchase: Most will be reports, articles, original student work, to be handed out in class or on library reserve. Total cost $5.00.
Enrollment limitations: 25 students.
Additional information: Related follow-up course in 2nd 7 weeks is "Institution Building" (Hart). See full description under *Institutions Grouping*. Interested students should register for full sequence.

BUREAUCRATIC CHANGE

Instructor: Dick Hogarty

Competencies to be addressed: Politics Certificate: Public Sector Decision-making
Goals of course: To understand the various factors that promote and inhibit organizational change within public service bureaucracies.
How to learn and demonstrate competencies: Competency statement and criteria will be used as outline for simulation classroom exercise. Hopefully such simulation exercise will be sufficient to complete the competency.
Field-related learning opportunities appropriate to gaining competencies: Work within a bureaucratic setting helpful but not necessary.
Time needed outside of class: 2 hours/week.
Materials students should purchase: All assigned readings will be placed at the reserve desk in the CPCS Library.
Enrollment limitations: 25 students.

INSTITUTION BUILDING

Instructor: Phil Hart

Competencies to be addressed: Social Change Certificate: Local Government Structure, Analysis of Power; Community Change Certificate: Program Development; Writing Analysis.
Goals of course: To examine various theories of institution building in developing and developed countries. To review case studies of successful and unsuccessful institution building. To look at institution building in relation to social change.
How to learn and demonstrate competencies: Attend class, do reading; carry out class projects and report on the project.
Field-related learning opportunities appropriate to gaining competencies: Some opportunity in instances where process of institution-building can be observed.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: Various reading competencies, alternative economic institutions competency.
Materials students should purchase: A.A. Althshuler, *Community Control* (paperback), $5.00. Other materials on library reserve.

ISSUES OF JUSTICE AND CONFLICT IN THE AMERICAN POLITICAL NOVEL

Instructor: David Smith

Competencies to be addressed: Social Change *or* Community Change Certificate: Analysis of Power (A & B); Values Certificate: Values and Choice; Reading Certificate: Comprehending the Work, Judging the Work.
Goals of course: To examine several different styles of American politics, to examine the relationships between ideology, values, and political style, and to provide an introduction to American political library.
How to learn and demonstrate competencies: Reading, seminar style classes, and some independent library research. Most students will prepare a paper or other formal presentation.
Time needed outside of class: 3-5 hours/week.
Helpful prior learning or competency completion: Initial Comprehension Reading Competency or adequate reading skills, Democratic Theory (not required).
Materials students should purchase: Several paperbacks with a total cost of approximately $10.00. Texts will include *All the King's Men*, Robert Penn Warren; *Standing Fast*, Harvy Swedes, *Facing the Lions*, Tom Wicker; *Ward Eight*, Joseph Dimen; and *In Dubious Battle*, John Steinbeck. If possible, we will also view three movies: *The Candidate*, *Chinatown*, and *Citizen Kane*.

RESEARCH TECHNIQUES

Instructor: Phil Hart

Competencies to be addressed: Social Change Certificate: Neighborhood Research and Observation; Community Change Cert.: Community Structure; Writing Cert.: Analysis. SPECIAL NOTE: Students may complete *either* Neighborhood Research Competency in Social Change Certificate or Community Structure in the Community Change Certificate, but may not complete both competencies because they overlap. Student will be able to make a good start on the Community Structure competency in two day-long workshops, but should expect to do additional work to complete this competency.
Goals of course: To focus on field research methods in the literature and to design and carry out a limited scope field research project.
How to learn and demonstrate competencies: Attend class sessions, do readings and carry out a field project. Students should also be prepared to critique other studies which utilized field research methods.
Field-related learning opportunities appropriate to gaining competencies: Can be made available through the instructor.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: Basic Math, Statistics, various reading and writing competencies.
Materials students should purchase: *Research Methods in Social Relations*, $9.00. Other materials will be reports, journal articles, to be copied or on library reserve.

TWO VIEWS OF A NEIGHBORHOOD

Instructor: Clark Taylor

Competencies to be addressed: Social Change Certificate: Neighborhood Research and Observations; Reading Certificate: Prereading, Comprehending the Work, Doing the Work.
Goals of course: To gain new ways of understanding neighborhoods; to develop initial research skills; to increase reading skills.
How to learn and demonstrate competencies: Class sessions will include discussions of readings, an introduction to the use of census materials, methods for gathering and analyzing data related to an hypothesis and practice in developing reading skills.
Field related learning opportunities appropriate to gaining competencies: Field experience is not necessary to gaining the competency.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: None; this is an introductory course for the Social Change Certificate.
Materials students should purchase: *Death & Life of the Great American City* (New York: Vintage Books, 1961) Jane Jacob's paperback version.
Additional information: Students intending to work on the Community Change Certificate should not take this course because those who do the Community Change Certificate cannot also do the Social Change Certificate.

UNDERSTANDING ECONOMICS

Instructors: Pat Jerabek and Sandra Kanter

Competencies to be addressed: Political Economy Certificate: Traditional Economic Concepts and Economic Allocation.
Goals of course: The course is designed to give students an understanding of economic con-

cepts. It will focus on the economic system in the United States and provide insight into how the system operates.
How to learn and demonstrate competencies: Readings, classroom discussion, written work, attention to the newspaper.
Time needed outside of class: 3 hours/week.
Helpful prior learning or competency completion: Simple graphs used throughout the course. People concerned about abilities should see instructor.

ECONOMIC COSTS OF DISCRIMATION

Instructor: Pat Jerabek

Competencies to be addressed: Political Economy Certificate: Economic Distribution.
Goals of course: That students become aware of ways in which society pays later for denial of education, fair wage and job opportunity to selected groups.
How to learn and demonstrate competencies: Class discussions, readings, minor independent projects on topics chosen from course.
Time needed outside of class: 3 hours/week.

REDLINING AND STATE REGULATOR AGENCIES

Instructor: Pat Jerabek

Competencies to be addressed: Political Economy Certificate: Public Economics; Politics Certificate: Public Sector Decision-Making
Goals of course: To understand the scope of the Massachusetts Redlining Study and to relate it to broader banking and regulatory issues.
How to learn and demonstrate competencies: Readings, field observation of banks, class discussions and some written analysis of field observations.
Field-related learning opportunities appropriate to gaining competencies: Opportunity to be involved in projects of state banking department.
Time needed outside of class: 3-4 hours/week.

PUBLIC SECTOR ECONOMICS

Instructor: David Smith

Competencies to be addressed: Political Economy Cert.; Public Economic, Economics Distribution
Goals of course: To 1) develop an understanding of the budgeting process in the public sector; 2) understand the allocation of public monies; and 3) understand public sector development finance tools.
How to learn the competencies: Readings and seminar-style classes, some field work in state or city budget departments.
How to demonstrate the competencies: In-class evaluation of research project.
Field-related learning opportunities appropriate to gaining competencies: Work with legislative committees and advocacy groups concerned with economic policies.
Time needed outside of class: 3-5 hours/week.
Materials students should purchase: Much of the material will be xeroxed and on library reserve, *The City's Wealth*, Ed Kirsher et. al., *Northeast Cities Reader*, John Case, ed.

SPACE, TIME, AND THE URBAN FISCAL CRISIS

Instructor: Michael Stone

Competencies to be addressed: Urban Economy (may be used in either Housing, Community Change, or Political Economy Certificates); Public Economy (Political Economy Certificate)
Goals of course: To develop an understanding of the relationship between urban development and the economic system, using metropolitan Boston as a major example. The course will 1) examine the economic and geographical history of cities over the past century, culminating in the crises and conflicts of the 60's and 70's; 2) evaluate various theories which try to explain the form and dynamics of urban development; 3) apply history and theory to land development patterns and process in the metropolitan area.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER THE CENTER FOR COMMUNITY CHANGE AND HOUSING

THE FAMILY AS A POLITICAL UNIT

Instructor: Dick Hogarty

Competencies to be addressed: Theories of Decision-making
Goals of course: Is today's family headed for collapse, extinction or unrecognizable transformation? It seems unlikely, but it is undeniable that the modern family is going through remarkable period of readjustment to society. The course will explore the family as a politic unit and how decisions get made within it. will also focus on the ways in which youn people have responded to the disruption of th family.
How to learn and demonstrate competer cies: Attend course sessions. Read and discus assigned material. A short paper on some a pect of family decision-making will be used demonstrate the competency.
Time needed outside of class: 3 hours/week
Materials students should purchase: To b announced.

DECISIONS AND DECISION-MAKERS

Instructor: Dick Hogarty

Competencies to be addressed: Public-secto Decision-making
Goals of course: To explore the ways in whic political leaders and bureaucrats actually mak policy decisions. The focus is on how decisior get made within a governmental setting, em phasizing the interplay and interrelationships c people, programs and politics.
How to learn and demonstrate competer cies: Attend course sessions. Read and discus assigned material.
Time needed outside of class: 3 hours/week
Materials students should purchase: Marth Weinberg, *Managing the State*, paperbac $5.95.

LEGISLATIVE PROCESS

Instructor: David Smith

Competencies to be addressed: Politics Ce tificate: Legislative Process; students will als find material useful for the Elections Compe tency
Goals of course: To introduce students to th government of Massachusetts, to develop a understanding of the legal and technical proce dures which control legislative behavior at th state and federal levels, and to help develop th skills necessary to work successfully as legis lators.
How to learn and demonstrate competer cies: The course will be based on the 197 Legislative session, and each student will pre pare a report based on an actual proposal befor the Legislature.
Field-related learning opportunities appr priate to gaining competencies: The course substantially field based.

ime needed outside of class: 2-3 hours at the egislature.
elpful prior learning or competency com-letion: Democratic Theory competency or ork experience with any public sector or lob-ying group.
Iaterials students should purchase: All iaterial on reserve in the CPCS Library.
nrollment limitations: 25.
dditional information: The course is cheduled to meet only once a week so that udents will have the equivalent of one class eeting's time to spend at the Capitol or other-ise working on their field projects.

OLITICAL POWER: WHO HAS IT ND HOW IS IT USED?

nstructor: David Smith.

ompetencies to be addressed: Politics Cer-ficate: Theories of Decision-Making; *or* So-ial Change Certificate: Analysis of Power
oals of course: To look at the structure of olitical power in the Twentieth Century Un-ed States, to consider the roots of that struc-ure — in particular the relationship between olitical and economic power, and to help de-elop analytic skills.
ow to learn and demonstrate competen-ies: The course is structured as a bi-weekly eminar with sessions based on readings. Stu-ents will propose a report for one or the other f the double competencies based on those eadings.
ime needed outside of class: approximately hours/week.
elpful prior learning or competency com-letion: Democratic Theory; Basic Economics ill be helpful but not necessary.
aterials students should purchase: J.K. albraith, *New Industrial State*; Kirkpatrick ale, *Power Shift*. We will also read sections of ike Royko's *Boss*, Robert Caro's *Power roker*, and Robert Dahl's *Who Governs*. hese books will be on reserve in the CPCS ibrary and are expensive. Students will not eed to purchase them.

ISCRIMINATION AS A CULTURAL ALUE AND ECONOMIC FORCE

nstructor: Pat Jerabek

ompetencies to be addressed: Political conomy Certificate: Economic Distribution; alues Certificate: Value Change.
oals of course: To explore the connection between cultural values, discriminatory practices and the effects on people's incomes, health, education and leisure. We will consider the issues around slavery in the United States, women in the labor force and current policy issues attempting to deal with discrimination problems.
How to learn and demonstrate competencies: Attend class, read suggested articles, present topics to class, write papers.
Field-related learning opportunities appropriate to gaining competencies: Pesons whose work in values discrimination issues may develop projects based on that exposure.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: Traditional Economic Concepts recommended, not required.

MARXIST ECONOMICS

Instructor: Michael Stone.

Competencies to be addressed: Marxist Economics (Proposed competency, not yet presented to the Certificate Council), Independent Interest Certificate or may use in Political Economy Certificate; Alternative economic Institutions.
Goals of course: 1) to develop a basic understanding of the framework and tools of Marxist economic analysis, including such concepts as the labor theory of value, surplus value, commodity fetishism, capital accumulation, and declining rate of profit; 2) to apply this frame work to certain central historical trends in the development of modern capitalism, such as imperialism, monopoly capital, and the growing role of the State; 3) to begin to use these tools to understand current issues, such as inflation, unemployment, and the fiscal crises of state and local governments.
How to learn and demonstrate competencies: The course will consist of readings, class discussions and group projects. Part of the competency will involve several short papers, part will involve a group project on a current issue, including a critique of the conventional approach and the development of a Marxist analysis.
Field related learning opportunities appropriate to gaining competencies: Will depend upon the issues selected and whether people are engaged in political work around the issues.
Time needed outside of class: Reading 1-2 hours/week; competency projects; 1 hour/wk.
Helpful prior learning or competency completion: Personal study or course on Marxist social theory or on conventional economics.
Materials students should purchase: Marx, *Value, Price and Profit*; Mandel, *Marxist Economic Theory*; URPE, *Radical Perspectives on the Economic Crisis of Monopoly Capitalism*. Total cost $13.00.

INDIVIDUAL AND SOCIETY GROUPING

Certificates: Role and Identity,
Small Groups

***PEOPLE IN GROUPS**

THIS IS AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER START OF SEMESTER.

Instructor: Stanley Wachs

Competencies to be addressed: Small Groups Certificate: Concept of a Small Group, Analysis of Small Group Behavior.
Goals of course: This is a course devoted to the study of human interaction in small groups.
How to learn and demonstrate competencies: We will make use of data we get from a series of "laboratory exercises", and from readings and discussions to examine some essential characteristics of human interaction: social attraction, group and individual decision-making, relationship between group and individual goals, cooperation and competition, reference groups, leadership style, communication patterns, group development, and intergroup relationships. Competency evaluation will take place both during and after the course. Students will be given the opportunity, either orally or in writing, to demonstrate a selection of competencies.
Time needed outside of class: 3 hours/week.
Materials students should purchase: Booklist will be provided. Approximate cost: $10.
Enrollment limitations: 25 students.

EXPERIENCING A SMALL GROUP: AN INSIDE VIEW

Instructor: Stanley Wachs

Competencies to be addressed: Small Groups Certificate; Concept of Small Group, Individual as a Group Member.
Goals of course: The primary emphasis of this course is on the development of insight and

skill in observing and diagnosing group behavior. Essentially, it is a small group **experience** with focus on a variety of ways of looking at what happens in small groups.
How to learn and demonstrate the competencies: The information growing out of weekly small group meetings will serve as the prime source of data for analyzing the group's process: communication patterns, norms that develop, how decisions are made, how conflict is handled, etc. The course is seen, also, as an opportunity for the student-participant to observe and evaluate his/her own interpersonal style with an eye towards improving effectiveness in working with other people. Students will have the opportunity, both during and after the course, to demonstrate capability in analyzing group behavior as well as their role in the small group.
Time needed outside of class: 2-3 hours/ week.
Materials students should purchase: Booklist will be provided. Total cost will be approximately $10.00.
Enrollment limitations: Limited to 15 students because it is a **small group** experience.

WORK ROLES AND PERSONAL SATISFACTION

Instructor: Ai-Li Chin

Competencies to be addressed: Role and Identity Certificate: Who Am I or How I See Others/Others See Me; Value Certificate: Values and Work.
Goals of course: To 1) examine your own work roles, 2) diagnose the role network in the job setting, 3) map out informal groupings and lines of communication/influence, and 4) look at the environment of work values. Questions we shall raise: How do issues of race, sex, age effect your work role? What are problems of boundaries between professional role and claims to personal service in the office or community? How does the environment of values effect my role? And what is the balance sheet of personal satisfaction/dissatisfaction?
How to learn and demonstrate the competencies: Examine your own work role, share your work experiences in class, attend lectures/discussion on relevant concepts and examples.
Time needed outside of class: 2-3 hours/ week.
Cost of materials: under $10.00.

COMMUNICATING ACROSS BARRIERS

Instructor: Ai-Li Chin

Competencies to be addressed: Selected competencies in new Communications Certificate; Role and Identity Certificate .: How I See Others/Others See Me.
Goals of course: To examine our own styles as well as common practices of communicating across a variety of barriers; How do we communicate with a stranger or someone with a stigma? With a person of the opposite sex, from a different racial/ethnic group, in a different status-power position, or across the generation gap? We shall draw upon here-and-now experiences, observations from the field, and selected readings from literature. There will be opportunities for classroom practice of ways of communicating on topics agreed upon in class.
How to learn and demonstrate the competencies: By pooling our observations on ways we and others communicate, by participating in demonstration/practice sessions, by doing reading assignments and attending lectures/discussion.
Time needed outside of class: 2-3 hours/ week.
Cost of materials: under $10.00.
Enrollment limitations: 20 students due to emphasis on participation and practice.

THE VIEW FROM BELOW: PERSPECTIVES, PROBLEMS, AND STRATEGIES OF WORKING CLASS PEOPLE

Instructor: Patricia Fleming

Competencies to be addressed: Role and Identity Cert.: The Social Self, How I See Others, How Others See Others, Distorting Mechanisms, Changing Identity; Cultural Comparison Cert.: Social Policy and Culture.
Goals of course: Social class identification involves more than one's type of work and level of income. In this course we will examine from the point of view of the working class the social correlates of class identity, the nature of the relationship between classes, and the social mechanism whereby class sytems are maintained or changed.
How to learn and demonstrate competencies: Learn by reading, discussion, observation, and reflection. Demonstrate by written papers and classroom participation.
Time needed outside of class: 2-3 hours/ week.

COMMUNITY PEOPLE: FORMING SOCIAL IDENTITY WITHIN COMMUNITIES

Instructor: Patricia Fleming

Competencies to be addressed: Role and Identity Cert.: Who Am I? How I See Others, How Others See Others, Ways of Changing Identity.
Goals of course: To understand the meaning of "social identity:" and "community"; to examine how a person's social identity is defined by community affiliations. How was your social identity established in your community of origin? What changes in identity occur as you move from your community of origin to new communities? What kinds of messages about social identity are conveyed when a person says, "I live in South Boston (or Wellesley, or Roxbury)"? What assumptions do we make on the basis of such residence information about people, and how do such assumptions affect behavior? What are the techniques and ethics of changing identity by moving from one community to another, and what are the problems and benefits of such migration?
How to learn and demonstrate the competencies: Reflection on and classroom discussion of the communities in which we have lived and the issues encountered in moving from one to another, reading and attending lectures.
Time needed outside of class: 3 hours/week.
Cost of materials: maximum of $15.00.

***THE LANGUAGE EXPERIENCE: COMMUNICATIONS AND COMMUNITY**

AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED AS ENTRY POINT FOR **BOTH** NEW AND CONTINUING STUDENTS.

Instructor: Michael Greene

Competencies to be addressed: New Communications Certificate: Competencies to be announced; Writing/Speaking Certificate: Students select competencies.
Goals of course: Participants will learn how to communicate more effectively with language. The goals are improved abilities to read, write, listen and speak.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER THE APPLIED LANGUAGE AND MATH CENTER.

LANGUAGE AND IDENTITY

N ASSESSMENT-RELATED ENTRY OURSE DESIGNED AS ENTRY POINT OR **BOTH** NEW AND CONTINUING TUDENTS.

structor: Michael Greene

ompetencies to be addressed: Writing Certicate: Advocacy and Personal Experience; ole and Identity Certificate.
oals of course: The goals are improved abil- to listen, speak, read and write and a general nprovement in the ability to communicate th language. Language behavior often offers clear and useful insights into our own iden- y and that of others. Language behaviors are so frequently used as ways of defining roles. e will consider the relationship between lan- age and identity in a careful, systematic way.

LEASE SEE COMPLETE COURSE DECRIPTION UNDER THE APPLIED LANUAGE AND MATH CENTER.

LACK WRITERS AND THE OMEN'S EXPERIENCE

structor: Emily Steele

ompetencies to be addressed: Reading ert.: Comprehending the Work, Judging the ork; Writing Cert.: Analysis, Experiential riting; Role and Identity Cert.: Students can lect the competency(ies).
oals of course: 1) To look at how Black omen are seen by Black writers; 2) To xamine some of the choices made by Black omen themselves in their writing; 3) To look the roles Black women play in novels, short ories, poems, plays.

LEASE SEE COMPLETE COURSE DECRIPTION UNDER THE APPLIED LANUAGE AND MATH CENTER.

FEMALE AND MALE: A COMPARATIVE VIEW OF SEX ROLES

N ASSESSMENT-RELATED ENTRY OURSE FOR **BOTH** NEW AND CONINUING STUDENTS. FIRST CLASS BEGINS TWO WEEKS AFTER THE START OF HE SEMESTER.

nstructor: Stanley Wachs and Patricia Fleming

Competencies to be addressed: Role and Identity Certificate: Social Self; How I See Others and Others See Me.
Goals of course: To examine the nature of sex roles in contemporary society. To explore their origins and functions. To compare these to sex roles in other societies. To analyze the effect of sex role patterns on one's personal experience of work, sexuality, race relations, family, etc. To provide opportunity for women to discuss issues raised with other women, and men with other men.
How to learn and demonstrate competencies: Discussion, reading, films, guest speakers, field projects, written papers.
Time needed outside of class: 3 hours/week.
Materials students should purchase: Assigned texts and articles, approx. $12-$15.

THE GROUP IN LITERATURE, THEATRE AND FILM

Instructor: Stanley Wachs

Competencies to be addressed: Small Groups Certificate: The Dynamic Concept of Groups, Analysis of Small Group Behavior.
Goals of course: To enhance our understanding of human interaction in small groups through the critical study of examples chosen from literature, theatre and film. Group phenomena such as decision-making, individual and group goals, leadership style, power, communication patterns, and group development will be explored in: *Abandon Ship* (Sale), *The Exterminating Angel* (Bunuel), *Twelve Angry Men* (Lumet), *No Exit* (Sartre), *Lord of the Flies* (Golding), *The Lemming Condition* (Arkin).
How to Learn and Demonstrate Competencies: Discussion, Readings, Films, Guest Speakers, Written Papers.
Time needed outside of class: 3-4 hours/week.
Materials students should purchase: Reading materials will be assigned. Approx. $12-$15.

GROUPS AND THEORIES OF CHANGE

Instructor: Stanley Wachs

Competencies to be addressed: Small Groups Certificate: Dynamics of Interpersonal Change (and perhaps Group Development)
Goals of course: Explore the ways in which small groups promote individual, group and organizational change. We will concentrate on group theory and laboratory methods and will examine the relationship to and influence upon social work, family dynamics, organizational development, and group psychotherapy. Guests from these disciplines will participate.
How to learn and demonstrate competencies: 1) complete reading assignments for class discussions and presentations; 2) complete competencies for written or oral presentation.
Field-related learning opportunities appropriate to gaining competencies: It will be helpful if the student is, or has been, a member or leader of a group.
Time needed outside of class: 3-5 hours/week.
Helpful prior learning or competency completion: This course is for students who have sufficient experience with groups to analyze the dynamics of a group and who want to increase their knowledge of the theories of behavior change.
Materials students should purchase: Will be assigned; estimated cost $12-$15.

THE AMERICAN FAMILY

Instructors: Elaine Werby and Carter Jefferson

Competencies to be addressed: Human Growth and Development Cert.: Social Interaction, Role and Identity Certificate: Who Am I: The Social Self; Values Certificate: Value Change.

PLEASE SEE FULL COURSE DESCRIPTION UNDER HUMAN GROWTH AND DEVELOPMENT

CITIES IN SCIENCE FICTION

Instructor: Philip Hart

Competencies to be addressed: Communications Certificate: Mass Media; Social Change Certificate; Local Government Structure.
Goals of course: To use futuristic views of urban life as a mode to analyze mass media products and structural characteristics of municipalities. To develop an interest in views of the future and scenario development.
How to learn and demonstrate competencies: Attend lectures, participate in discussions, do readings and carry out a project.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: Reading and writing competencies.
Materials students should purchase: Clem,

Greenberg, Olander, *The City 2000 A.D.*; Kurt Vonnegut, *Player Piano*; R. Silverberg, *The City*, and other short stories, approx. $12.
Additional information: This will be a class dealing with scenarios and abstractions.

INSIDE ORGANIZATIONS

Instructor: Philip Hart

Competencies to be addressed: Communications Certificate: Communications in Organization.
Goals of course: To develop an understanding of communications processes in organizations. To examine various theories of communications as they relate to formal organizational settings. To develop an understanding of formal organizations.
How to learn and demonstrate competencies: Attend lectures, do readings, participate in discussions and carry out an organizational research project.
Field-related learning opportunities appropriate to gaining competencies: May be some opportunity to observe within an on-going formal organization.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: First three competencies in Communications Certificate; analysis and research skills.
Materials students should purchase: H. Wilensky, *Organizational Intelligence*, and other materials. $10.00.

INTERPERSONAL COMMUNICATION: TWO PERSON SYSTEM

Instructor: Carter Jefferson

Competencies to be addressed: Communications Certificate: Human Communications: Sender; Receiver.
Goals of course: To improve verbal communications skills, self-awareness; to learn to analyze verbal communications using Miller-Nunnally-Wackman theory.
How to learn and demonstrate competencies: Read, discuss, practice exercises in class and out; observe others' communications.
Time needed outside of class: 2-3 hours/week.
Materials students should purchase: Books, articles to be provided in class: approx. $10.
Enrollment limitations: 20 students.

COMMUNICATIONS PROJECT SEMINAR

Instructor: Philip Hart

Competencies to be addressed: Communications Certificate: Communications Project.
Goals of course: To design a communications project and to carry it out to completion.
Field-related learning opportunities appropriate to gaining competencies: Some in UMB Media Center and other production facilities, particularly for experienced people.
Time needed outside of class: 4-5 hours/week.
Helpful prior learning or competency completion: Some production background and organizational skills.
Materials students should purchase: Materials on production, supplies, film, tape, etc. may be as much as $35.00.
Enrollment limitations: 15 students due to mentor-type relationship.

***LANGUAGE AND IDENTITY**

*THIS IS AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS.

Instructor: Michael Greene

Competencies to be addressed: Writing Certificate: Advocacy, Experiential Communication; Role and Identity Certificate: The Social Self and Social Perceptions.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER APPLIED LANGUAGE AND MATH.

***LANGUAGE AND COMMUNICATIONS THEORY: A PRACTICAL EXPERIENCE**

THIS IS AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS.

Instructor: Michael Greene

Competencies to be addressed: Writing Certificate: Analysis, Experiential Communication; Communications Certificate.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER APPLIED LANGUAGE AND MATH.

FANTASY AND THE WRITING PROCESS

Instructors: Sharyn Lowenstein and Lynn Shapiro

Competencies to be addressed: Writing Certificate: Experiential Communication, Advocacy, Analysis; Small Groups Certificate: Individual as a Group Member; Values Certificate: Values and Choice

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER APPLIED LANGUAGE AND MATH.

PRODUCING A MULTI/MEDIA PRESENTATION: .....3 HOURS/WEEK THE COLLEGE SEES ITSELF

Instructor: Dan Leahy

Competencies to be addressed: Communications Certificate: Communications Project; other competencies to be negotiated with instructor.
Goals of course: The course will consist of an intense work-group learning process, ultimately focusing on the production of a multi-media presentation about College III. Students will take specific responsibilities in the overall planning, scripting, creation of visual and audio materials, editing and design of the distribution plan for the production. Skills learned are applicable for a variety of purposes in the public and community context.
How to learn and demonstrate competencies: Students will work with the instructor to produce this presentation which will be used by the College for its public information and recruitment efforts.
Time needed outside of class: 1-2 hours/week.
Helpful prior learning or competency completion: Students should have basic skills in one of the following: photography, audio recording, interviewing, script writing, musical general media.
Enrollment limitations: Six students will be selected on the basis of having some skills in handling media equipment and interest in media field. Students seeking to participate should submit a one-page summary of their interest and skills to the instructor.

CULTURAL STUDIES GROUPING

Certificates: Values, Cultural comparison
Foreign Language

SOCIAL POLICY: RACE AND RACISM

THIS IS AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. FIRST CLASS BEGINS TWO WEEKS AFTER START OF SEMESTER.

Instructor: Dick Hogarty

Competencies to be addressed: Values Certificate: What Are Values; and/or Cultural Comparison Certificate: The Idea of Culture.
Goals of course: To understand the meaning of race and the sources of racist thought and behavior which in turn motivate social policy. To develop a typology of race policies and assess their implications both for the races involved and for the societies as a whole. To examine the contention that racism is a modern phenomenon deriving from the economic relationships of capitalism.
How to learn and demonstrate competencies: Biologically race is a dubious concept, but as a social phenomenon race is readily identifiable as one of the most pervasive sources of division and conflict among people. Through discussion and readings we will analyze different race policies within a comparative cultural context.
Time needed outside of class: 2 hours/week.
Helpful prior learning or competency completion: Familiarity with Gunnar Myrdal's *"An American Dilemma"*.
Materials students should purchase: Readings will be placed on reserve in the CPCS library.
Enrollment limitations: 25 students.
Additional information: Related follow-up course in second 7 weeks is "Racism and Anti-Racism in Mass." (Feingold). See full course description under **institutions** grouping. Interested students should register for full sequence.

RACISM AND ANTI-RACISM IN MASSACHUSETTS HISTORY

Instructor: Ellen Feingold

Competencies to be addressed: Values Certificate, especially Values and Myth, and Values and Change; Cultural Comparison Certificate: History and Culture.
Goals of course: To examine the history of attitudes and relations among races in Massachusetts beginning with Pilgrims and Indians, continuing through the Salem Witch Trials to the present.
How to learn and demonstrate competencies: In general, by writing papers conforming to the Competency requirements.
Time needed outside of class: 2 hours/week.
Helpful prior learning or competency completion: "What Are Values" for further work in the Values Certificate; "The Idea of Culture" and "Cultural Comparison" for "History and Culture"

BIOLOGY OR ENVIRONMENT: QUESTIONS OF RACE AND CULTURE

Instructor: Robert Rosenbaum

Competencies to be addressed: Cultural Comparison Certificate: The Idea of Culture; Cultural Comparison.

UNDERDOG: THE MAKINGS OF RACE, SEX, AND POVERTY POLICY

Instructor: Ellen Feingold

Competencies to be addressed: Values Certificate: Value Change, Myth, Values and Choice, Bureaucracy and Moral Responsibility; Cultural Comparison Cert.: Social Policy and Culture.
Goals of course: This course will examine the way in which public policy with regard to groups seen as needing special assistance is developed. The course will focus on the perception of the "problem" by both government and the group affected, and the process of developing "solutions" and social policy in that area.
How to learn and demonstrate competencies: In general, by writing papers conforming to the Competency Requirements. The instructor may authorize special oral class presentations to present material in fulfillment of competency requirements.
Field-related learning opportunities appropriate to gaining competencies: Placements may be available in government offices where policy is developed.
Time needed outside of class: 3 hours/week.
Helpful prior learning or competency completion: "The Idea of Culture" and "Cultural Comparison" are necessary prerequisites for those planning to complete "Social Policy and Culture Competency."

LOOKING BACKWARD: AN EXPERIMENTAL SEMINAR IN FAMILY HISTORY

Instructor: Nancy Hoffman

Competencies to be addressed: Values Certificate; Writing from Personal Experience and Analysis, Library Research. Not all students will work on all competencies.
Goals of course: To reconstruct in writing and by the collection of documents and artifacts the history of one's family; to place one's family in the history of an ethnic group, a social class, and a cultural tradition, to learn geological research methods.
How to learn the competencies: 1) Reading of selected family histories: diaries, interviews, such as: *Jubilee*, Margaret Walker, *A Death in the Family*, James Agee, *Angle of Repose*, Wallace Tegner and selections compiled by Nancy Hoffman; 2) Collection and analysis of early family documents; 3) Interviews with older family members; 4) Reading of selected articles on social class, specific ethnic groups, and on interviewing and data collecting; 5) Class discussion.

*DO NOT BUY BOOKS UNTIL A FINAL READING LIST IS ISSUED. SEE INSTRUCTOR IF YOU WANT TO BEGIN READING DURING THE SUMMER.

How to demonstrate the competencies: Compilation of a family album and oral presentation. A typical album will include: an overview of the family and its tradition; interviews with or essays about older family members; pictures and appropriate written documents.
NOTE: This course will require considerable commitment and initiative from students. The teacher will structure class discussion around common problems and themes, but research plans must be individually designed. The teacher will provide intensive help for **insecure** writers.
Time needed outside of class: unpredictable — 5 hours/week.
Materials students should purchase: Five paperback books to be selected. Available in the CPCS Library. Purchase Price should not exceed $10.00.
Enrollment limitations: limited to 15 students because course requires major independent advising from faculty and delicate class discussion.

PRACTICUM: COMMUNITY PARTICIPATION IN EDUCATION

Instructor: Nancy Hoffman

Competencies to be addressed: Students should plan a major project combining com-

petencies from several certificates. Most appropriate are the Values Certificate, Politics Certificate, Human Growth and Development and Writing Certificates.

The City-Wide Education Coalition (CWEC) is a private, nonprofit corporation which represents public school parents from every Boston Neighborhood. The 15 staff members are racially and ethnically diverse; women, especially mothers, predominate. The staff work in various roles: There are parent organizers, a monthly newspaper called "Common Ground", and technical assistance and advocacy services. Several CPCS students are/have been paid workers at CWEC.

Goals of course: Students with skills in newsletter and report writing, program evaluation, legal and political research, and community education will practice these skills in a field setting under direct supervision. There are opportunities to monitor proceedings in Judge Arthur Garrity's court, research issues such as Chapter 766, and school utilization of taxes, write for a community newspaper, work in school councils, as well as tutor CWEC staff in writing. Students will be divided into two groups: activist interns and researchers. Interns will be integrated into the agency according to the match between their skills and CWEC needs; researchers will as a group carry out a project for CWEC. Students will meet weekly at CWEC and will be assigned to attend selected CWEC staff training and program planning meetings as well as occasional seminars on history of school reform in Boston and elsewhere.

How to demonstrate the competencies: Completion of competencies to be negotiated individually. For example, collection of materials written on the job; competency exam; observation of students while organizing a community education event.

Time needed outside of class: All students must be willing to commit themselves to a fixed set of hours per week for fourteen weeks.

Helpful prior learning or competency completion: Knowledge of history of school desegregation in Boston; interest in community participation in educational decision-making; ability to demonstrate all CPCS writing competencies.

Enrollment limitations: 10 students. Course requires substantial supervision and integration of students into CWEC staff. Particularly appropriate prior course for students — Tutor Training, Community Education.

Additional information: All students must be interviewed by Nancy Hoffman and, where appropriate, by staff of City-wide Educational Coalition.

Work-study students may be paid for work at CWEC.

Some students may also be placed at the CCC to monitor Community District School Council procedures.

BEGINNING SPANISH

Instructor: Quentin Chavous

Competencies to be addressed: Foreign Language Certificate or the Independent Interest Certificate in Spanish.

Goals of course: To assist the student in learning Latin American Spanish. Emphasis is on speaking and listening skills and on basic language patterns and vocabulary needed to answer simple questions and conduct simple interviews — skills that can be of genuine utility in a public or community service setting and which can be retained through occasional exercise.

How to learn and demonstrate competencies: Students should expect to spend a second semester to reach the level required by the two introductory competencies being planned. Students may combine the two introductory competencies with Assessment or other General Center competencies to complete a General Center Certificate that fulfills the Cultural Studies Requirement or may elect to secure the two advanced language competencies. The latter will normally require an additional two semesters of classroom instruction.

Time needed outside of class: 2 hours for each hour of class.

Helpful prior learning or competency completion: Some knowledge of grammar is helpful but not necessary.

Materials students should purchase: *Espanol a lo vivo*, Textbook and workbook. Cost: about $16.00. The same books will be used in the following semester.

Enrollment limitations: 25 students.

INTERMEDIATE SPANISH

Instructor: Quentin Chavous

Competencies to be addressed: Foreign Language Certificate or the Independent Interest Certificate in Spanish.

Goals of course: To assist the student in learning Spanish as it is spoken in Latin America. After a review of the language structures and vocabulary with which the student is assumed to be familiar, the course will be devoted to reinforcing and enlarging on those skills an shaping them to be of specific use in a public c community service setting.

How to learn and demonstrate competen cies: Students who wish to complete all fou competencies in the Foreign Language Certif cate should normally expect to spend a total c four semesters in Spanish language instructior Enrollment in the Fall semester of Intermedia Spanish constitutes a third semester; enrol ment in the Spring semester is normally re quired to reach the level required by the Certif cate.

Time needed outside of class: 2 hours for eac hour of class.

Helpful prior learning or competency com pletion: Necessary prerequisite: The pric course at CPCS or the equivalent in knowledg and skills. See the instructor to determine if yo are prepared to take this course.

Materials student should purchase: *Espanc a lo vivo,* Textbook and Workbook about $1(Continuing students will already have th book. If you are new to the class, see the ir structor about possible used copy. An add tional book may be assigned half way throug the course.

Enrollment limitations: 25 students.

*THE AIR-CONDITIONED NIGHT MARE: AMERICAN MYTHS AN CHANGING VALUES

ASSESMENT-RELATED ENTRY COURS DESIGNED FOR **BOTH** NEW AND CON TINUING STUDENTS. CLASSES BEGI TWO WEEKS AFTER START OF SEMES TER.

Instructor: Harold Bronk

Competencies to be addressed: Values Cer tificate: What Are Values; Value and Choice Values and Myth; Reading Certificate; Com prehending the Work, Judging the Work; Wri ing Certificate; Analysis and Experientia Communication.

Goals of course: To provide a common fram of reference, through readings and discussion for the analysis of American life and culture

How to learn and demonstrate competen cies: Through reading and discussion; student will have the opportunity to demonstrate com petencies by means of a variety of writin forms.

Field-related learning opportunities appr priate to gaining competencies: General lif experience: family, school, work.

Time needed outside of class: 3-4 hour week.

Helpful prior learning or competency completion: Assessment.
Materials students should purchase: Books and articles: $10-$15.
Enrollment limitations: 30 students.

*TRANSLATING WOMEN'S EXPERIENCE: READING & WRITING ON THE THEME OF WOMEN'S WORK

ASSESMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER START OF SEMESTER.

Instructor: Nancy Hoffman

Competencies to be addressed: Values Certificate: What Are Values, Values and Choice, Values and Work; Writing Certificate: Personal Experience, Analysis; Reading Certificate: Initial Comprehension and other possible reading competencies.
Goals of course: One meaning of "to translate" is to change into a different form. In this course we will analyze the ways in which women writers "translate" their unspoken perceptions about women's experience into the written word. We will also translate our own experience into stories and autobiographies. Besides putting the collection of short stories, *Working Women: Stories and Poems*, into historical context, we will pay special attention to language — the way we and other women writers present an image, create a symbol, or simply tell a story. For the purposes of this course, you should know that housework, art work, writing, studying, and the like are considered work, even if unpaid.
How to learn and demonstrate competencies: attend class, complete reading and writing assignments.
Field-related learning opportunities appropriate to gaining competencies: Analysis of student's work and daily life.
Time needed outside of class: 3 hours/week.
Materials students should purchase: *Working Women: Stories and Poems* (anthology to be distributed in class).

ETHNICITY AND COMMUNITY: A CULTURAL HISTORY OF BOSTON

ASSESMENT-RELATED ENTRY COURSE DESIGNED FOR **BOTH** NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER START OF SEMESTER.

Instructor: James Green

Competencies to be addressed: Cultural Comparison Cert.: Idea of Culture, Cultural Comparison; Social Change Cert.: Neighborhood Research.
Goals of course: To evaluate our own attitudes toward ethnicity and community; to compare different ethnic communities in Boston; to explain how Boston's various immigrants — notably Irish, Italians, Jews, and Blacks — have built their communities through history; to define how Bostonians have used culture.
How to learn and demonstrate competencies: Discussion of experiences, interviews, and reading in class. Writing and/or reporting on history of Boston's ethnic and racial communities.
Field-related learning opportunities appropriate to gaining competencies: Students who have already completed Idea of Culture and Cultural Comparison Competencies in the Cultural Comparison Certificate may use this course to complete History and Culture or Social Policy & Culture competencies.
Time needed outside of class: 2-4 hours/week.
Materials students should purchase: Gans, *The Urban Villagers* (Free Press paperback $5) Handlin, *Boston's Immigrants* (paperback about $4.50).

TECHNICAL ASSISTANCE TO COMMUNITY AGENCIES: FIELD LEARNING PROJECTS

Instructor: Nancy Hoffman

Competencies to be addressed: Students will select competencies from Values, Politics, Reading and Writing Certificates; and may work on "Preventive Education" and "Analysis of a Social Problem" competencies in Human Growth and Development Certificate.
Goals of course: Groups of students will design and carry out a research or technical assistance project at the request of a community agency. This semester, students will work for City-Wide Education Coalition (CWEC) and Roxbury Multi-Service Center. The CWEC project is a continuation of several years association with CPCS.

The City-wide Education Coalition (CWEC) is a private, nonprofit corporation which represents public school parents from every Boston neighborhood. The staff members are racially and ethnically diverse. The staff work in various roles: There are parent organizers, a monthly newspaper called "Common Ground", and technical assistance and advocacy services. Several CPCS students have been paid workers at CWEC.

CWEC projects include: research on Boston school department budget procedures, organizing of parents around issues of reading (CPCS students have written a Reading Workbook this summer which is the basis for parent reading workshops); and writing for the CWEC newspaper, "Common Ground".

Roxbury Multi-Service Center provides social services to residents of Roxbury and North Dorchester, including counseling on housing, legal, neighborhood and family problems. It also runs a tutoring program for children. CPCS students are working on a community education project presently. Other projects will be defined.
How to demonstrate the competencies: Completion of competencies to be negotiated individually. For example, collection of materials written on the job, competency exam; observation of student while organizing a community education event.
Time needed outside of class: All students must be willing to commit themselves to a fixed set of hours per week for fourteen weeks. Meetings held at the Agency Weekly.

SOCIAL POLICY AND THE PUBLIC SERVANT

Instructor: Badi G. Foster

Competencies to be addressed: Social Policy and Culture (double competency) of the Cultural Comparison Certificate; Values Certificate: What Are Values?
Goals of course: To expose potential public and community servants to the basic literature, theories and concepts of social policy. To understand the process by which values shape the definition of social problems which demand policy responses. To make explicit the connections or lack of connections between a policy process, the values of policy makers and the lives of citizens for whom the policy was designed.
How to learn and demonstrate the competencies: The course will be based on the case study method. A set of case studies will be analyzed and discussed by each student in both a written and oral fashion. These analyses will constitute evidence for the award of competencies.
Time needed outside of class: 6 hours/week.
Materials students should purchase: *Blam-*

ing the Victim, by William Ryan; selected cases prepared by the Kennedy School of Government, Harvard University. Total cost approximately $12.00.

WORK: HISTORY, THEORY AND REALITY

THIS COURSE IS CROSS-LISTED IN THE HARBOR CAMPUS CATALOGUE AS "WORKING PEOPLE" IN THE HISTORY DEPARTMENT (COURSE #401)

Instructors: Jim Green (CPCS) and Linda Gordon (CAS History Department)

Competencies to be addressed: Values Certificate: Work and Values; Cultural Comparison Certificate: Comparative Cultures and History and Culture.
Goals of course: To analyze our own values and attitudes toward work; to compare our values attitudes with those of others in different classes and cultures; to read and criticize theories about work; to examine the history of the working class in the U.S., and to evaluate changes in the labor process.
How to learn and demonstrate competencies: Discussion of experiences, interviews and reading in class. Writing and/or reporting on your work history or the history of other working people.
Field-related learning opportunities appropriate to gaining competencies. Working for a living.
Time needed outside of class: 2-4 hours/week.
Materials students should purchase: Studs Terkel, *Working* (paperback approx. $4); Harry Braverman, *Labor and Monopoly Capital* (paperback about $5).

GROWING UP: ON BECOMING AN ADULT

Instructors: Frank Davis and Emilie Steele

Competencies to be addressed: Human Growth Certificate: Life Stages; Values Cert.: What Are Values?, Values and Choice; Writing and Speaking Certificate: Experiential Communication, Analysis; Reading Certificate: Comprehending and Judging the Work. Not all students will complete all competencies.
Goals of course: 1) to discuss the physical, social, and emotional issues faced in adulthood; 2) to consider various theories of adult development; 3) to think about the implications of adult development for the helping professions.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER APPLIED LANGUAGE & MATH.

Helpful prior learning or competency completion: History of school desegregation in Boston; interest in community participation in decision-making; ability to demonstrate CPCS writing competencies.
Enrollment limitations: 10 students.
Additional information: All students should be interviewed by Nancy Hoffman, and, where appropriate, by staff of City-Wide Educational Coalition or Roxbury Multi-Service Center. **Work study students may be paid for work.**

DEATH IS A SOCIAL EVENT: CULTURAL FACTORS IN DYING AND BEREAVEMENT

Instructor: Patricia Fleming

Competencies to be addressed: Cultural Comparison Certificate; Comparative Cultural Contexts; Roles and Identity Cert.: Others See Others; Distorting Mechanisms.
Goals of course: 1) to explore our own attitudes about death; 2) to examine the personal and social problems associated with dying and bereavement; 3) to identify sources and purposes of customary patterns of dealing with these issues; 4) to compare these customary patterns with those patterns related to death and bereavement in selected other societies.
How to learn and demonstrate competencies: Reflection on personal experiences; reading assignments and library research; interviewing others; viewing and discussing films and video programs; visiting speakers; class discussion; written papers.
Time needed outside of class: 3-4 hours/week.
Materials students should purchase: E. Kubler-Ross, *On Death and Dying;* D. Sudnow, *Passing On;* and other books and articles - total cost $10-$15.
Additional information: Lynn Shapiro (Counseling Center) will lead a group for any students who wish to explore personal issues related to their own experiences connected with death and bereavement.

SCIENCE, TECHNOLOGY AND SOCIETY: WHERE FROM? WHERE TO?

Instructors: Patricia Fleming, Walter Grant, James Green

Competencies to be addressed: Comparative Cultural Certificate: History and Culture; Values Certificate: Value Change. New Competencies, especially tailored to this course.
Goals of corse: To explore: As a society, where are we coming from? Where are we going? What have been the roles of science and technology in bringing us from a communal and farming society to an individualistic and individualized society? To analsye; the relationship of Science and technology to political economics and cultural systems as they have developed historically. To forecast: Utopia, oblivion, or more of the same?
How to learn and demonstrate competencies: Class discussion, reading assignments, field trips, films, written papers.
Time needed outside of class: 3-4 hours/week
Materials students should purchase: Reproduced articles, not to exceed $10.
Additional information: This program is a pilot project funded in part by the National Endowment for Humanities. You will participate not only by learning, exploring and demonstrating competencies, but also by helping to create new competencies, by determining the content of the seminars, and by evaluating the effectiveness of the program in the CPCS curriculum.

CENTER FOR COMMUNITY CHANGE AND HOUSING

The basic purpose of the Center for Community Change and Housing (CCH) is to prepare people to participate purposefully and competently in the processes of social change in local urban communities. In this context the primary role of the Center is to prepare CPCS students for careers in housing community agency management and advocacy planning. For this preparation the Center offers two career certificates: 1) Housing, and 2) Community Change. The latter, in turn, provides a choice between two major options: Community Agency Management and Advocacy Planning. Courses addressing the Community Change Certificate are offered both morning and evening, while Housing Certificate courses are given primarily in the evening. As is the case throughout the college, DDH students with applicable previous experience, may be

evaluated for competence which, if certified, will count toward the degree.

COMMUNITY CHANGE AND HOUSING CENTER CERTIFICATES

Every CPCS student must complete ten certificates, including a career certificate, for graduation. The CCH center offers two complete career certificates: 1) Community Change and 2) Housing — each of which meets the career certificate part of the graduation requirements.

COMMUNITY CHANGE CERTIFICATE

The Community Change Certificate has two major options: Advocacy Planning and Community Agency management. The former includes skills needed by community organizers and new program developers, while the latter calls for the development of operational skills used by managers of community-based agencies. Both options emphasize the need to address and remove underlying causes of injustice and oppression in local communities. Both therefore, require an intensive study of one local community. Both also call for reflection on needs faced by different income groups in urban areas, for study of the impact of governmental social problems, and for analysis of the political and economic forces that contribute to community problems and affect all efforts to improve local conditions.

Skill and knowledge competencies addressing these areas make up the first half of the certificate and include:

1) **Human Needs and the Urban Environment:** Can compare differences in the opportunities and choice available to individuals and meeting their needs in the urban realm, including an explanation of what determines and affects these differences.
2) **Social Welfare:** Analyze and critique governmental intervention strategy for social welfare by selecting one Federal program and discussing six questions outlined in competency.
3) **Urban Economy:** Analyze the dynamics of the economy in a metropolitan area by doing one of the following:
   1) Analyze dynamics of a major industry in a metropolitan area.
   2) Analyze dynamics of land use in a metropolitan area.
   3) Analyze dynamics of labor and employment in a metropolitan area.
4) Community Structure: Case Study — Describe political and economic structure of a local community or neighborhood in terms of seven items listed in competencies.
5) Analysis of Power: The Political Context: For an objective social change identify and analyze the political context of a community.

These core competencies are required of those taking either the Advocacy Planning or Community Agency Management option.

ADVOCACY PLANNING OPTION

The advocacy planning option in the certificate involves organizing, planning and negotiating skills. Efforts to improve local communities involve, first, organizing residents both to develop a base of power and to provide a setting in which common needs can be identified. These needs must then be translated into programs that can be implemented to meet the needs. Planning skills are required to define programs and to prepare for their implementation and evaluation. Finally, advocate planners need skills in negotiating for the resources required by the programs.

Building on the five Community Change Core Competencies, this option includes:

6) **Action Organizing:** Develop, participate in, and evaluate an organizing effort for addressing a community issue or problem.
7) **Negotiation:** Prepare for, conduct, and assess your outcome and effectiveness in a negotiating session.
8-9) **Program Development** (Double Weight) Plan longterm (3-5 year) comprehensive program for change in a local community that is designed to improve the quality of life and give residents substantially increased control over activities and resources in their community.
10) **Evaluation Design:** Identify basic issues involved in program evaluation and plan an evaluation for a community based agency which protects clients' rights and answers community concerns.
11) **Analysis of Power:** Part B: Strategy Planning: Plan a political strategy designed to remove obstacles to and stimulate support for a social change objective in a local community.

The last three competencies provide an opportunity to specialize in one program area. Students currently working on the certificate are specializing in the following areas: Community schools, community health centers, day care, town land use, and environmental pollution.

COMMUNITY AGENCY MANAGEMENT OPTION

The management option in the certificate is addressed to those who are, or plan to be, responsible for community based agencies — halfway houses, community homes for the retarded, multi-service centers, community development corporations, etc. A detailed knowledge of the community served by the agency, along with an understanding of the forces that play on that community, provides a basis for the specific day-to-day management skills. Thus, those electing the management option will do the core competencies described above. The Community Agency Management option includes four basic and two advanced management competencies, as follows:

Part I: Basic Competencies

1) **Personnel Practices:** Construct a staffing and personnel system for a community based agency which reflects the unique needs of the particular agency including personnel policies, job descriptions, an organizational chart and procedures for supervision and evaluation of the staff.
2) **Grant Development:** Write a proposal and budget for funding of a community service program and identify possible sources of financial support for the program.
3) **Financial Records:** Develop a basic system of fiscal management for a small community based agency including which records and controls are needed.
4) **Evaluation Design:** Identify the basic issues involved in program evaluation and plan an evaluation for a community based agency which protects clients' rights and answers community concerns.

Part 2: Advanced Competencies (Any 2 of 3)

5) **Evaluation Implementation:** Carry out a program evaluation, write and analyze a program evaluation report which takes into consideration short and long term benefits and detriments to the clients and community.

6) **Financial Management:** Perform a specific financial task for a community based agency such as filling out Rate Setting Commission forms; or solve a specific financial problem for an agency such as a deficit or cash flow problem.
7) **Community Relations:** Obtain neighborhood and Board support for a service program.

Variations are possible within this option. Students may choose to substitute the Action Organizing and Negotiation competencies for the two advanced management competencies. Program Development (a double weight competency) may likewise be done in place of the advanced competencies.

POSSIBLE EXTENSION USING THE INDEPENDENT INTEREST CERTIFICATE

Those following either of the major options may obtain additional management competencies by using the Independent Interest Certificate. Thus, advocate planners may take the set of four basic management competencies in this way:

The third advanced competency
Program Development (double weight)
Either Action Organizing or Negotiation

Using the Independent Interest Certificate in this way provides an opportunity to obtain the full set of Management and Management-related competencies offered by the College.

HOUSING PROGRAM

Aims of the Housing Program

Housing is an incredibly broad, diverse, and ever-changing sector of the American Economy. People with specialized knowledge and skills in housing are employed in a great variety of professional fields and activities, including, for example:

- consumer advocacy
- community organizing
- technical assistance
- social service delivery
- legislative research
- housing court assistance
- training and education
- code enforcement
- urban planning
- environmental impact analysis
- social policy analysis
- program oversight and evaluation
- rent control
- environmental health
- neighborhood improvement
- urban renewal
- real estate management
- construction
- real estate appraising
- real estate brokerage and sales
- mortgage lending
- investment analysis
- market research
- title searching
- insurance
- law
- engineering
- architecture

In many of these fields professional training has traditionally occurred on the job or as part of the job, but relevant knowledge, skills and experience may help in obtaining the job. On the other hand, jobs in many fields require at least a bachelor's degree, even though the degree has traditionally not included any relevant professional training. In only a few of the fields are graduate professional degrees required or normal.

The goal of the CPCS Program in Housing is to provide people with an education which will maximize opportunities and choices for pursuing careers within the vast array of housing and related fields. The program does not train people as specialists in any one particular area of housing. Rather, the objective is to develop broad knowledge and practical skills which will give people the greatest possible flexibility in confronting the following kinds of employment issues:

- changes and new opportunities in the field of housing
- a complex and unpredictable job market
- evolving personal goals and professional interest

The Program aims to put its graduates at an advantage in obtaining jobs in housing and related fields. In addition, although the Program is not oriented toward preparing people for graduate school, it does offer relevant preparation for those who may want to seek advanced degrees in related fields.

HOUSING CERTIFICATE:

In order to provide both a broad understanding of the field and set of relevant and practical skills, the Housing career certificate requires that students demonstrate competence in four categories:

I. The Human and Local Political Context
II. Technical knowledge and Skills
III. Housing in the Larger Economy and Society
IV. Planning and Synthesizing Skills

The four parts of the certificate represent a progression from basic to more advanced knowledge and skills. People will normally obtain the certificate by progressing from one section of the certificate to the next in sequence.

Part I: The Human and Local Political Context

1) **Human Needs and the Urban Environment:** Can compare differences in the opportunities and choices available to individuals and families for meeting their needs in the urban realm, including an explanation of what determines and affects these differences.
2) **Local Housing Politics:** Can analyze how local housing issues or policies develop, what kinds of institutions and people have an interest and an impact, and how they go about trying to achieve their goals.

Part II: Technical Knowledge and Skills

3) **Housing Terminology and Concepts:** Can recall definitions of basic terminology and meaning of basic concepts by passing a written test.

All of the required terms and concepts are defined in a glossary prepared by the Center.

4) **Housing Consumer Law:** Can advise tenants or homebuyers/homeowners or their legal rights and how to exercise and defend them, and can assist residents in dealing with public agencies that handle housing problems. The emphasis is on practical understanding of the law and legal system and skill in applying this understanding to real situations.
5) **Housing Research Techniques:** Can carry out a title search on a particular piece of property, obtaining and interpreting housing data on a local community, and critically reading an environmental impact statement. It also requires preparation of a strategy for researching a local housing issue.

) **Housing Design and Site Evaluation:** Can devise a housing program — consisting of type of occupancy, size of households, and income mix — and then prepare either a new construction or rehabilitation design scheme for a site and evaluate it.
) **Housing Operations:** Can prepare a budget and operating plan for a housing development, including a description of budget line items, required management personnel, tenant responsibilities, rent collection procedures, and a maintenance system.
) **Housing Development Finance:** Can prepare a mortgage loan application for a proposed housing development, including projections of income, operating expenses, department service and return on equity, plus development expenses, equity and working capital requirements, and can describe the purpose of various loan closing documents.

rt III: Housing in the Larger Economy and ciety

) **The Urban Economy:** Land Use: Can explain how the pattern of land use has developed historically in a metropolitan area, and analyze the current dynamics of the housing market and real estate development in various parts of the metropolitan area.
) **The National Housing System:** Can describe trends in population and households, the stock of housing, and households' use of the stock, and of the structure and dynamics of the housing production industry, the system of housing finance and its relationship to the overall economy, and the evolution of the government's role and housing policies.

art IV: Planning and Synthesizing Skills

1) Attack on a Housing Problem: (a double competency)
Calls for an independent project which applies both practical skills and knowledge of the larger system to a real situation. It requires an analysis of the nature, scope, origins, and causes of the problem, and the development of a set of goals and a strategy for beginning to solve the problem.

xample Competency: Human Needs and the rban Environment (Competency I of the ommunity Change Certificate)

Presented here is one full CCH competency statement, Human Needs and the Urban Environment. Note that it contains a number of elements: title, rationale, general statement of competence, criteria, standards and example of evaluation. Other competency statements in the Community Change Certificate and Housing Certificate follow a similar format. Human Needs is the first competency in, and serves as an introduction to, both Center career certificates.

Immediately following the Human Needs and the Urban Environment competency statement is a set of curriculum summaries of the competence required by each of the competency statements. However, only full competency statements, such as the Human Needs statement, can be used as the basis for the evaluation.

Summaries are included here for both the Community Change and the Housing Certificates. Students do one or the other. Within the Community Change Certificate students choose either the Community Agency Management option or the Advocacy Planning option.
Human Needs and the Urban Environment.

Rationale:

Individuals and families in the urban environment face quite different opportunities depending on their income, ethnic affiliation, age, and educational backgrounds.

Their access to and use of important services and resources generally available in the environment depends in fundamental ways on their socio-economic status. Some people are able to respond to the forces and pressures of urban life by selecting from among a wide array of choices — to live in the city or the suburb, to drive a private car or take a train to work, to place children in public or private schools. Others have almost no choice at all as they respond to the demands of urban life. This competency asks you to analyze how people fare in the urban environment, depending on their socio-economic status.
Competency: Compare the choices and decisions different families face in meeting their needs in the urban environment.

Criteria:

1. Compare three families who differ in income, family composition, and culture.
2. Compare each family's needs for three different types of services.*
3. For each type of service identify the range of options available to each family for meeting its needs.
4. Compare the sets of options available to the three families, explaining any differences or similarities.
5. From among the options for each type of service, identify which option would most likely be chosen by each family.
6. Justify the identification of each specific option in terms of the family's income, composition and culture, drawing from a theory of human need.

Standards:

1. Options identified for the three services for each family must be consistent with each other and realistic in terms of the family's situation.
2. Differences in options among the families must be explained in terms of the differences in the situations of the families.
3. Identification of the specific options chosen by each family must apply a theory of human need drawn from relevant literature with sources identified.

Examples of Evaluation: When given descriptions of three different families, select three types of services, and then compare the choices and decisions according to the criteria.

Summary Statement of C.C.H. Competencies.

Please note that these summaries are for reference purposes only. Only full competency statements, such as the Human Needs Statement, can be used for evaluation purposes.

*Types of services include housing, health care, transportation, employment, income maintenance, etc.

COMMUNITY CHANGE
AND HOUSING CENTER

Community Change Certificate:

Section I-Context and Community
Part 1: The Context of Community Change

1) Human Needs and the Urban Environment: Can compare differences in the opportunities and choice available to individuals and families for meeting their needs in the urban realm, including an explanation of what determines and affects th3se differences.
2) Social Welfare: Analyze and critique a governmental intervention strategy for social

welfare by selecting one Federal program and discussing six questions outlined in competency.

3) Urban Economy: Analyze the dynamics of the economy in a metropolitan area by doing one of the following:
   A. Analyze dynamics of a major industry in a metropolitan area.
   B. Analyze dynamics of land use in a metropolitan area.
   C. Analyze dynamics of labor and employment in a metropolitan area.

Part 2: Intensive Focus on One Local Community

4) Community Structure: Case Study — Describe political and economic structure of a local community or neighborhood in terms of seven items listed in competencies.
5) Analysis of Power: A (S.C.); The Political Context: For an objective social change identify and analyze the political context of a community.

Section II-Community Agency Management
Part 1: Basic Competencies

1) Personnel Practices: Construct a staffing and personnel system for a community based agency which reflects the unique needs of the particular agency including personnel policies, job descriptions, an organizational chart and procedures for supervision and evaluation of the staff.
2) Grant Development: Write a proposal and budget for funding of a community service program and identify possible sources of financial support for the program.
3) Financiat Records: Develop a basic system of fiscal management for a small community based agency including which records and controls are needed.
4) Evaluation Design: Identify the basic issues involved in program evaluation and plan an evaluation for a community based agency which protects clients' rights and answers community concerns.

Part 2: Advanced Competencies

5) Evaluation `Implementation: Carry out a program evaluation, write and analyze a program evaluation report which takes into consideration short and long term benefits and detriments to the clients and community.
6) Financial Management: Perform a specific financial task for a community based agency such as filling out Rate Setting Commission forms; or solve a specific financial problem for an agency such as a deficit or cash flow problem.
7) Community Relations: Obtain neighborhood and Board support for the program.

INSTRUCTIONAL PROGRAM

The following courses were offered in 1977-1978. Offerings may vary from year to year.

CENTER FOR COMMUNITY CHANGE AND HOUSING

CURRENT ISSUES IN COMMUNITY CHANGE AND HOUSING

Instructor: Joe Slavet, Boston Urban Observatory

Competencies to be addressed: Information presented and discussed will be useful in working on competencies in the Community Change & Housing Certificates — as well as other certificates, including Social Change & Politics; for work on specific competencies, however, students should consult appropriate certificate advisor in CCH Center.
Goals of course: To provide an opportunity for CPCS students and staff to hear and meet leaders of many of the significant community change and housing activities in the Boston area.
How to learn and demonstrate competencies: Students with competency-related questions in the subject area addressed by a particular speaker will have an opportunity to raise and discuss them.
Additional information: This forum-style offering will be available not only to CCH Center and General Center/Institutions students who sign up for it, but also to all interested CPCS students and faculty. Individuals may choose to attend the entire series or specific sessions of particular interest. Watch for details of speakers and topics.

COMMUNITY CHANGE CERTIFICATE

Advising Note: New students (and students starting work on the Certificate) should take the course **People, Programs and Politics** this Fall Semester and plan to take a Spring course addressing the Community Structure and Analysis of Power Competencies. Those who follow this plan will have completed five com petencies by the end of the year (Communit Structure's double weight). One other compe tency, The Urban Economy, is required of al students working on the Certificate.

The certificate offers two major options: Ad vocacy Planning and Community Agenc Management. Courses addressing competer cies in these options are listed under the appro priate headings.

***PEOPLE, PROGRAMS AND POLITIC**

Instructor: Elaine Werby

Competencies to be addressed: Communit Change and Housing Certificates: Huma Needs and Urban Environment; Communit Change: Social Welfare; Housing: Local Hous ing Politics.
Goals of course: To introduce students to th concept of human needs as a determinant of th quality of life and to examine the politics c specific social programs. Competency assign ments will provide opportunity to work on reac ing and writing skills.
How to learn and demonstrate competer cies: Attend class, do assigned readings an competency exercises.
Field-related learning opportunities appro priate to gaining competencies: Work in th community.
Time needed outside of class: 2-3 hour week.
Materials students should purchas Xeroxed materials will be available for pu chase; total cost not to exceed $5.00.
Additional information: This is an entry lev course designed for students interested in th Housing Certificate and the Communit Change Certificate.

SPACE, TIME, AND THE URBAN FISCAL CRISIS

Instructor: Michael Stone

Competencies to be addressed: Urba Economy (may be used in either Housin Community Change, or Political Econon Certificates); Public Economy (Politic Economy Certificate).
Goals of course: To develop an understandir of the relationship between urban developme and the economic system, using metropolit Boston as the major example. The course wi 1) examine the economic and `geographic history of cities over the past century, culmina

ng in the crises and conflicts of the 60's and 0's; 2) evaluate various theories which try to xplain the form and dynamics of urban de- elopment; 3) apply history and theory to land evelopment patterns and processes in the met- opolitan area.
How to learn and demonstrate competencies: There will be reading assignments, class iscussions, and lectures. The two competencies can be demonstrated by completing two written exercises on history and theory plus a eam project on land use and development in ocal communities.
Field-related learning opportunities appropriate to gaining competencies: Community organizing, research, or development work relates directly to required projects.
Time needed outside of class: 3-4 hours/ week.
Helpful prior learning or competency completion: The competency "Traditional Economic Concepts" or knowledge of basic economic concepts is required; experience in community research is desirable.
Materials students should purchase: Warner, *The Urban Wilderness; Kapitalistate*, focus issue on the Urban Crisis; xeroxed articles. Total cost $16.00.

COMMUNITY CHANGE CERTIFICATE: ADVOCACY PLANNING OPTION

ORGANIZING FOR ACTION

Instructor: Phil Hart

Competencies to be addressed: Social Change: Action Organizing; Community Change; Action Organizing; Writing Advocacy.
Goals of course: To review and evaluate the effectiveness of successful and unsuccessful organizing efforts which have a public and community service context.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER THE GENERAL CENTER

***NEGOTIATION**

Instructor: David Matz

Competencies to be addressed: Negotiation: Ethics of Role
Goals of course: To teach the uses of power and leverage in a one-to-one negotiation setting. By repeated role play drills, in class and out, student will work with progressively more complex techniques of persuasion. While using various forms of power, the studentwill become sensitized to the ethical problems inherent in such use. Alternative ways of coping with these ethical problems will be discussed. Course will also serve as introduction to the Law Certificate, focusing on Negotiation and Ethics of Role as specific entry competencies.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER THE LEGAL EDUCATION SERVICES

NUTS AND BOLTS OF PROGRAM BUILDING

Instructor: Carole Upshur

Competencies to be addressed: Community Change Cert: Prog. Devel., Analysis of Power, Strategy Planning; Reading Certificate: Library Research; Writing Certificate: Technical Communication.
Goals of course: To aid students in researching and developing a program for an identified need in a particular community. Sessions will cover skills required, pitfalls and problems to anticipate, and strategies to successfully implement a program.
How to learn and demonstrate competencies: Attend class, read materials prepared by instructor, develop a program plan and discuss it in class.
Field-related learning opportunities appropriate to gaining competencies: Work in an agency or with a community group responsible for program development.
Time needed outside of class: one hour for readings, exercises; additional time will vary depending on type and scope of program being planned.
Helpful prior learning or competency completion: Community Structure, Analysis of Power A, Public Service Math. Students should come to first session with a particular community and program in mind or be prepared to make such selection within the first two weeks.
Materials students should purchase: Available on library reserve or xeroxed at student's expense.

EVALUATING COMMUNITY AGENCIES: DO THEY WORK?

Instructor: Carole Upshur

Competencies to be addressed: Community Change Certificate: Evaluation Design; Reading Certificate: Pre-Reading.
Goals of course: To assist students in designing evaluations for community programs which are based on measureable objectives and which will take into account both client and community concerns. Course will address evaluation competencies in both Advocacy Planning and Community Agency Management options of the Community Change Certificate.
How to learn and demonstrate competencies: Attend class, read the text and other written materials passed out, work on an individual project using a field placement or materials provided by the instructor. Prepare a written evaluation design for a particular community based agency.
Field-related learning opportunities appropriate to gaining competencies: Use own job situation or via instructor, work on a monitoring and evaluation committee of a Boston Area Council for Children
Time needed outside of class: 2-3 hours/ week.
Helpful prior learning or competency completion: Completion of Program Development or Grant Development Competencies.
Materials students should purchase: One text, *Practical Program Evaluation for State and Local Government Officials*, Hatry, Winnie, and Fisk, available through the UMass Bookstore, approximately $3.00.

COMMUNITY CHANGE CERTIFICATE: COMMUNITY AGENCY MANAGEMENT OPTION

PERSONNEL: MAKING OR BREAKING A COMMUNITY AGENCY

Instructor: Carole Upshur

Competencies to be addressed: Community Change Certificate: Personnel Practices.
Goals of course: To learn how to devise a personnel system to meet the needs of a community agency.
How to learn and demonstrate competencies: Complete class exercises, complete readings, use own agency or case example to complete an individual project.
Field-related learning opportunities: Use own job situation.
Time needed outside of class: 2 hours/week.
Helpful prior learning or competency completion: Job experience; students should have begun working on first half of Community Change Certificate, especially Human Needs and the Urban Environment and Social Welfare.

Materials students should purchase: Available on Library reserve or from instructor: approximately $5.00.

FINDING FUNDS FOR COMMUNITY AGENCIES

Instructor: Carole Upshur

Competencies to be addressed: Community Change Certificate: Grant Development; Reading Certificate: Library Research; Writing Certificate: Tech. Communication; Math Certificate: Public Service Math.
Goals of course: To help students identify possible sources of funds for a particular project and write a proposal which fits funding requirements. Partial completion of Public Service Math competency is possible.
How to learn and demonstrate competencies: Attend class, use library and appropriate references to research funding possibilities and prepare a proposal which contains both a narrative and budget.
Field-related learning opportunities appropriate to gaining competencies: Use own work situation or work with a community group seeking funding.
Time needed outside of class: 2-3 hours/week.
Helpful prior experience/competency completion: Students should have started work in the first half of the Community Change Certificate, especially in the Community Structure and Analysis of Power Competencies.
Materials students should purchase: 2 guides to grant writing, approx. $3, from instructor.

FINANCIAL RECORDS: KEEPING IN THE BLACK

Instructor: Carole Upshur

Competencies to be addressed: Community Change Certificate: Financial Records; Math Certificate: Public Service Math.
Goals of course: Students will gain an understanding of the basic records necessary for the financial control of a community-based agency, will be able to set up budget controls and project income and expenditures from one operating year to the next. Work can be counted toward partial completion of the Public Service Math Competency.
How to learn and demonstrate competencies: Attend class, read text, work on individual project from a field experience or using materials obtained from the instructor. Complete a written paper describing financial records and the account procedure for community-based agencies or take a test.
Field-related learning opportunities appropriate to gaining competencies: Use of own job situation in a community based agency is helpful but not required.
Time needed outside of class: 1-2 hours/week.
Helpful prior learning or competency completion: Grant Development, Personnel Practices.
Materials students should purchase: Two texts, total cost $10 available through U/Mass Bookstore: *Up Your Accountability,* Paul Bennett; *Where Do All The $$ Go*, Gerald G. Bowe, Jr.

*PEOPLE, PROGRAMS AND POLITICS

Instructors: Section 1: Clark Taylor; Section 2: Elaine Werby.

Competencies to be addressed: Community Change and Housing Certificates: Human Needs and the Urban Environment, Community Change Certificate: Social Welfare; Housing Certificate: Local Housing Politics.
Goals of course: To introduce students to the concept of human needs as a determinant of the quality of life and to examine the politics of specific social programs. Competency assignments will provide opportunity to work on reading and writing skills.
How to learn and demonstrate competencies: Attend class, do assigned readings and competency exercises.
Field-related learning opportunities appropriate to gaining competencies: Work in the community.
Time needed outside of class: 2-3 hours/week.
Materials students should purchase: Xeroxed materials will be available for purchase at a total cost not to exceed $5.00.
Additional information: This is an entry level course designed for all students interested in either the Housing Certificate or the Community Change Certificate.

ANATOMY OF A COMMUNITY

Instructors: Section 1: Michael Stone; Section 2: Joseph Slavet

Competencies to be addressed: Community Change Certificate: Community Structure and Analysis of Power, Housing Certificate: Housing Research Techniques; Social Change Certificate: Neighborhood Research and Observation, Analysis of Power A.
Goals of course: To develop skills in: 1) identifying issues and problems in local communities; 2) gathering quantitative and non quantitative data 3) organizing and interpreting data 4) formulating hypotheses and using data to test hypotheses about local issues and communities; 5) analyzing who has power in communities, how they use it, and why.
How to learn and demonstrate competencies: Course will consist of class discussions and lectures, field trips, and a series of field exercises and short reports.
Field-related learning opportunities appropriate to gaining competencies: There will be organized field trips and individual field exercises. People are encouraged to examine communities in which they live or work.
Time needed outside of class: 3-4 hours week.
Helpful prior learning or competency completion: Human Needs competency and either Local Housing Politics competency or Social Welfare competency. Also, if Basic Math competency has not yet been completed, students should enroll in math course or arrange for tutoring.
Materials students should purchase: Printed and xeroxed materials will be distributed. Total cost $12.00.

SPACE, TIME AND THE URBAN FISCAL CRISIS

Instructor: Michael Stone

Competencies to be addressed: Urban Economy (may be used in either Housing Community Change, or Political Economy Certificates); Public Economy (Political Economy Cert.)
Goals of course: To develop an understanding of the relationship between urban development and the economic system, using metropolitan Boston as the major example. The course will 1) examine the economic and geographical history of cities over the past century, culminating in the crises and conflicts of the 60's and 70's; 2) evaluate various theories which try to explain the form and dynamics of urban development; 3) apply history and theory to land development patterns and processes in the metropolitan area.
How to learn and demonstrate competencies: There will be reading assignments, class discussions and lectures. The two competencies can be demonstrated by completing two

itten exercises on history and theory plus a
am project on land use and development in
cal communities.
**eld-related learning opportunities appro-
iate to gaining competencies:** Community
ganizing, research, or development work re-
es directly to required projects.
me needed outside of class: 3-4 hours/
eek.
**elpful prior learning or competency com-
etion:** The competency "Traditional
onomic Concepts" or knowledge of basic
onomic concepts is required; experience in
mmunity research is desirable.
aterials students should purchase: All
aterials will be on reserve in the CPCS Lib-
ry, but may also be purchased if desired.
arner, *The Urban Wilderness;* Alcaly and
ermelstein, eds., *The Fiscal Crisis of Ameri-
n Cities*; xeroxed copies.
tal cost $18.00.

**NDING FUNDS FOR COMMUNITY
GENCIES**

structor: Carole Upshur

ompetencies to be addressed: Community
hange Certificate: Grant Development; Read-
g Certificate: Library Research; Writing Cer-
icate: Technical Communication.
oals of course: To help students identify pos-
ble sources of funds for a particular project
d write a proposal which meets funding re-
irements.
**ow to learn and demonstrate competen-
es:** Attend class, use library and appropriate
ferences to research funding possibilities and
epare a proposal which contains a narrative,
ork plan and budget.
**ield-related learning opportunities appro-
ate to gaining competencies:** Use own work
tuation or work with a community group seek-
g funding.
ime needed outside of class: 2-3 hours/
eek.
**elpful prior learning or competency com-
letion:** Students should have some experience
orking in community agencies or have started
ork in the first half of the Community Change
ertificate, especially the Community Struc-
re and Analysis of Power competencies.

**ERSONNEL: MAKING OR BREAKING
COMMUNITY AGENCY**

nstructor: Elaine Werby

Competencies to be addressed: Community Change Certificate; Personnel Practices.
Goals of course: To learn how to devise a personnel system to meet the needs of a community agency.
How to learn and demonstrate competencies: Complete class exercises, complete readings, use own agency or case example to complete an individual project.
Field-related learning opportunities appropriate to gaining competencies: Can use own job situation.
Time needed outside of class: 2 hours/week.
Helpful prior learning or competency completion: Job experience in a community agency is helpful but not required.
Materials students should purchase: Available on Library Reserve or from instructor. Aproximate cost of $5.00.

**FINANCIAL RECORDS:
KEEPING IN THE BLACK**

Instructor: Pat Jerabek

Competencies to be addressed: Community Change Certificate: Financial Records, Math Certificate: Public Service Math (partial).
Goals of course: Students will gain an understanding of the basic records necessary for the financial control of a community based agency; will be able to set up budget controls and project income and expenditures from one operating year to the next. Work can be counted toward partial completion of the public service math competency.
How to learn and demonstrate competencies: Attend class, read text, work on individual project from a field experience or using materials obtained from the instructor, complete a written paper describing financial records and the accounting procedure for community based agencies or take a test.
Field-related learning opportunities appropriate to gaining competencies: Use of own job situation or a community based agency is useful but not required.
Time needed outside of class: 1-2 hours/week.
Helpful prior learning or competency completion: Grant Development, Personnel Practices.
Materials students should purchase: Two texts, total of $10, available through the UMass. Bookstore; *Up Your Accountability*, Paul Bennett; *Where Do All The $$ GO*, Gerald G. Bowe, Jr.

**EVALUATING COMMUNITY
AGENCIES: DO THEY WORK?**

Instructor: Carole Upshur

Competencies to be addressed: Community Change Certificate; Evaluation Design.
Goals of course: To assist students in designing evaluations of community programs; evaluation designs should be based on measureable objectives and take into account principles of research design. Course will address the Evaluation Design requirement of both the Advocacy Planning and Community Agency Management options of the Community Change Certificate.
How to learn and demonstrate competencies: Attend class; read the texts; work on an individual project using a field placement or materials provided by the instructor. Prepare a written evaluation design for a particular community-based agency.
Field-related learning opportunities appropriate to gaining competencies: Use own job situation or volunteer experience, past or present.
Time needed outside of class: 2-3 hours/week.
Helpful prior learning or competency completion: Completion of Program Development or Grant Development competencies and other competencies in the first half of the Community Change Certificate.
Materials students should purchase: Two paperbacks: *Practical Program Evaluation for State and Local Government Officials*, $2.95; and *Evaluation Research*, $4.95. Available at UMass Bookstore.

CENTER FOR COMMUNITY CHANGE AND HOUSING

HOUSING CERTIFICATE

ADVISING NOTE: New students (and students starting work on the Certificate) should take the course **People, Programs and Politics** this Spring Semester. Second semester students can appropriately take the course **Anatomy of a Community** which addresses the Housing Research competency. Students enrolled in this course will also be able to work on the Neighborhood Research and Observation competency in the Social Change Certificate.

A Further Note: The Traditional Economic Principles competency (Political Economy Certificate) is a prerequisite for the Urban Economy competency which is required for those doing the Housing Certificate. Students

should anticipate doing the Principles competency a semester before they plan to work on The Urban Economy competency. Courses for these competencies are offered at morning and evening times in alternating semesters. The Spring Semester course, Understanding Economics, will be offered at a morning time. See full listing under General Center, Institutions Grouping.

*PEOPLE, PROGRAMS AND POLITICS

Instructors: Section 1: Clark Taylor; Section 2: Elaine Werby.

PLEASE SEE FULL COURSE INFORMATION UNDER COMMUNITY CHANGE CERTIFICATE.

ANATOMY OF A COMMUNITY

Instructors: Section 1: Michael Stone; Section 2; Joseph Slavet.

PLEASE SEE FULL COURSE INFORMATION UNDER COMMUNITY CHANGE CERTIFICATE.

SPACE, TIME, AND THE URBAN FISCAL CRISIS

Instructor: Michael Stone

PLEASE SEE COMPLETE COURSE INFORMATION UNDER COMMUNITY CHANGE CERTIFICATE

HOUSING OPERATIONS

Instructor: Robert Whittlesey

Competencies to be addressed: Housing Certificate: Operations.
Goals of course: To examine issues, constraints and problems which arise in the operation of multi-family housing and to understand the nature or management decisions which must be made in order to prepare a budget and operating plan for a housing development.
How to learn the competencies: Class discussions, exercises and reading assignments.
How to demonstrate the competencies: By a written statement which incorporates a budget and operating plan for a specific development.
Time needed outside of class: 2-4 hours/week for exercises and background reading.
Helpful prior learning or competency completion: Basic math, budgeting, familiarity with the operation of multi-family housing.
Materials students should purchase: Illustrative materials and cases will be provided at cost (not to exceed $5). Assigned reading will be available in the Library.

HOUSING DEVELOPMENT FINANCE

Instructor: Robert Whittlesey

Competencies to be addressed: Housing Certificate: Financing.
Goals of course: To understand the factors that must be considered in determining the financial feasibility of a housing development; to understand how an application for mortgage loan financing is prepared; and to have a familiarity with loan closing documents.
How to learn the competency: Class discussions, exercises and reading assignments.
How to demonstrate the competency: By a written paper with an application for a selected or given housing development and a statement describing loan documents.
Time needed outside of class: 3-5 hours/week for exercises, field research and background reading.
Helpful prior learning or competency completion: Basic math, familiarity with design, construction or operation of multi-family housing.
Materials students should purchase: Materials and cases will be provided at cost (not to exceed $7) Other assigned reading will be available in the library.

ATTACK ON A HOUSING PROBLEM

Instructor: Clark Taylor

Competencies to be addressed: Housing Certificate: Attack on a Housing Problem (double-weight competency); Writing/Speaking Certificate; Analysis.
Goals of course: To develop skills: 1) in identifying housing problems, their causes and extent; 2) in defining goals and alternative strategies; 3) in selecting strategies and steps necessary to attack the problem; 4) in defining a plan of evaluation for assessing the effectiveness of the chosen program.
How to learn and demonstrate competencies: Each student, in consultation with faculty, will select a housing problem, survey available information about the problem and develop a proposed response for dealing with the problem. The course will be organized as a seminar to which students will be expected to bring work in progress.
Field-related learning opportunities appropriate to gaining competencies: Present jobs may provide problems of sufficient scope for the competency. Some students will need to engage in independent, field-oriented research.
Time needed outside of class: 3-5 hours/week.
Helpful prior learning or competency completion: Students willbe expected to have completed most of the Housing Certificate prior to working on this competency.
Materials students should purchase: *Housing Policy Considerations* (Boston Redevelopment Authority and Boston Urban *Observatory)* — $5.00.
Enrollment limitations: Limited only to those who have completed most of the Housing Certificate, except by permission of the instructor.

THE WORLD OF CONSTRUCTION

Instructor: Melvin Gadd

Competencies to be addressed: HIP Competency II: The World of Construction (This is an alternative professional skills competency in the Housing Certificate).
Goals of course: 1) To develop advanced knowledge of structural, electrical, plumbing, and heating components of residential structures, and corresponding provisions of the State Building Code; 2) to develop skill in identifying rehabilitation needs of one-to-six-family buildings and determining the most cost effective method of repairs; 3) to develop skill in converting survey notes into a work write-up containing construction specifications and costs.
How to learn competencies: There will be classroom lectures and discussion, field study of buildings, and direct experience with materials and components.
How to demonstrate competencies: There will be a written examination on elements of a residential structure, involving recognizing problems, outlining repairs and estimating costs. There will then be an actual field survey which must produce a set of survey notes and a work write-up containing specifications and cost estimates.
Field education opportunities appropriate to gaining competencies: The course is given at a public agency overseeing housing improvements and learning and evaluation will involve direct contact with the world of construction.
Time needed outside of class: 2 hours/week.
Helpful prior learning or competency completion: General knowledge of the provisions of the State Building Code which apply to re-

abilitation of wood frame houses and detailed nowledge of Article II of the State Sanitary ode.
nrollment limitations: Limited to 22 stu-ents because of space limitations. Students ho work at HIP are guaranteed places; up to 8 ther CPCS students may enroll.

OUSING IMPROVEMENT FINANCING

nstructor: Melvin Gadd

ompetencies to be addressed: HIP Compe-ncy III: Housing Improvement Financing This is an alternative professional skills com-etency in the Housing Certificate)
oals of course: 1) To develop skill in deter-ining financial eligibility for the Housing Im-rovement Rebate Program, the Section 312 an program, and the Homesteading Program,) to develop skill in determining the dollar mount of improvements a participant in each f the Programs can afford; 3) to develop skill n preparing and processing the financial forms sed in each program; 4) to develop skill in ssisting homeowners in determining their apacity to undertake improvements.
low to learn competencies: Classroom lec-ures, discussions, workshops, practice exer-ises. There will be a written examination on he Program requirements. There will then be n actual or simulated case requiring assistance o applicant, preparation and processing all orms and documents.
ield education opportunities appropriate to aining competencies: Course will be given at public agency overseeing housing improve-ent; learning and evaluation will be based on ctual cases.
ime needed outside of class: 2 hours/week.
Helpful prior learning or competency com-letion: General knowledge of HIP eligibility nd rebate provisions.
Enrollment limitations: Limited to 22 stu-lents because of space limitations. Students who work at HIP are guaranteed places, up to 8 ther CPCS students may enroll.

SPEAKING OF HOUSING

nstructor: Clark Taylor

Competencies to be addressed: Housing Cer-ificate: Housing Terminology and Concepts
Goals of course: To gain confidence in the use of the language of housing in six areas: 1) de-initions of housing; 2) institutional aspects of eal property; 3) public controls over housing, 4) housing production; 5) housing finance; and 6) basic economics of housing operation.
How to learn and demonstrate competencies: Assigned readings, class presentations and class discussions will provide opportunities for gaining understanding of, and skill in using, the language of housing. Competence may be demonstrated through attaining an 85% score on a test given at the last class session.
Time needed outside of class: 2-3 hours/week.
Materials students should purchase: *People Before Property*.
Additional information: The test for this competency will be offered during the first part of the semester. Check with Center secretary for date & time. Those who miss 9 or more questions (of 40 on test) should plan to take this Speaking of Housing course.

HOUSING DESIGN AND SITE EVALUATION

Instructor: Robert Whittlesey

Competencies to be addressed: Housing Certificate: Housing Design and Site Evaluation.
Goals of course: 1) to become familiar with the elements of housing design (i.e. unit types, physical arrangement of units within a building or buildings, siting of buildings and related facilities); 2) to learn how to investigate a housing site; and 3) to learn how to analyze the relationship of conditions of a site to a housing design scheme.
How to learn and demonstrate competencies: Class presentations, assigned readings, field investigations, and assigned exercises. Competency may be demonstrated by students working singly or in teams by a written report containing a selected housing program and a design scheme for a chosen or assigned housing site and an evaluation of the conditions of the site on the design scheme. Scheduled assignments will complete substantially all portions of the competency.
Time needed outside of class: 2-3 hours/week.
Helpful prior learning or competency completion: Knowledge of multifamily housing; experience in field research; ability to talk to residents; demonstration of Housing Terms and Concepts and Human Needs competencies.
Materials students should purchase: No single textbook will be used. Maps, public regulations and other material, cost not to exceed $10, will have to be purchased.

THE HOUSING SYSTEM

Instructor: Michael Stone

Competencies to be addressed: Housing Certificate: The National Housing System Political Economy Certificate: Economic Allocation.
Goals of course: To develop skills and knowledge about housing from a national perspective, including population trends, the stock of housing, the housing production industry, mortgage credit and the national economy, the governmental role and housing policy.
How to learn and demonstrate competencies: All information needed to learn the competencies will be contained in course readings and lectures. Competencies can be demonstrated by completing a series of written exercises which will be assigned during the course.
Time needed outside of class: 2-3 hours/week.
Helpful prior learning or competency completion: Prior demonstration of Human Needs, Local Housing Politics, and Housing Terms and Concepts competencies.
Materials students should purchase: *Housing and Social Policy*, Hartman; *Savings and Loan Fact Book*; xeroxed materials. Total cost $15.00.

INCOME LAW FOR THE POOR, THE AGING, AND THOSE GETTING POORER

Instructor: Phyllis Freeman

Competencies to be addressed: Substantive Law (one or more) and implementation from the Law Certificate; Community Change Certificate: Social Welfare
Goals of course: We will take up problems in areas of substantive law selected from those used in the actual representation of clients by the Community Advocates Law Office (such as unemployment, Supplemental Security Income, bankruptcy, utilities, consumer, Aid to Families with Dependent Children, General Relief, Social Security, but not all of these). This course is mandatory for any student wishing to enter the Community Advocates Law Office and important background for anyone involved in advocacy for low income people.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER LEGAL EDUCATION SERVICES

INSTRUCTIONAL PROGRAM

The following courses were offered in 1977-78. Offerings may vary from year to year.

HUMAN GROWTH AND DEVELOPMENT CENTER

The Human Growth and Development certificate is designed generically to reflect the basic skills and knowledge needed by all workers in the human services. As students gain competence in the basics, they can begin to specialize according to their interests and career goals. The certificate concentrates on skills needed to work with individuals, groups, and families within various settings. These settings include services for the mentally retarded, day care centers, drug programs, services for the elderly and the like.

The Human Growth and Development certificate degree requirements are organized to achieve a balance of knowledge and "hands-on" practice as well as balance of general and specialized knowledge and skills.

Degree Requirements: A certificate from the Human Growth and Development Center fulfills the graduation requirement for one career certificate.

HUMAN GROWTH AND DEVELOPMENT CURRICULUM

The curriculum is divided into four parts. Part I comprises the general knowledge area which is seen as a base for both the specialized knowledge area and the specialized skills area. Part I consists of basic knowledge about: the course of development over the life span, particularly as that development is influenced by the individual's interaction with the environment; the range of human conditions which are defined by our society as social problems theories about how individuals and groups change; and the types of human services which have been and are currently provided for different populations and different social problems.

Part II comprises the basic skills section of the curriculum. These skills; the collecting of information, the reporting of information, and the evaluation of information reported by others in the field; are considered essential to any human service worker role.

Part III is the specialized knowledge area which provides an opportunity for in-depth study of: the experiences of particular populations of age groups, theories of development, or testing.

Part IV comprises the specialized skills area in which students have the option to select competencies which emphasize the application of theory to particular methods of intervention.

The distribution requirements for the 12 competencies required for a career certificate are as follows:

4 competencies from Part I
3 competencies from Part II
2 competencies from Part III
2 competencies from Part IV
1 additional competency selected from either part II or Part IV

The graduating student will have demonstrated a total of seven competencies from two sections and a total of five competencies from two other sections.

HUMAN GROWTH AND DEVELOPMENT CERTIFICATE

I. General Knowledge (1, 2 and 3 required — also 4 or 5 required)
   1) Human Development: Can describe and explain the developmental changes which occur in human behavior over the life span taking into account internal and external influences as well as specific developmental theories.
   2) Social Interaction: Families, Peers, and School: Can describe the dynamics of family relationships and the socializing influences of family, school and peers.
   3) Models of Change: Can describe and compare the major models for attitudinal and behavioral change.
   4) Social Problems: Definitions and Societal Response: Can discuss how society defines and responds to major categories of "social problems."
   5) Systems for Delivering Helping Services: Can analyze the relationship between client characteristics and needs and society's present service system and the values reflected in it.

II. Basic Skills (All three required)
   1) Collecting information: Observation and interviewing: Can use observation and interviewing techniques to collect relevant information about individual or group behavior.
   2) Reporting information: Developing a Case Report: Can develop a written case report based on information obtained through observation and interviewing.
   3) Research: Issues and Methods: Can critically evaluate research reports in an are of your professional interest.

III. Specialized Knowledge Area
   1) Comparative Group Membership Experiences: Compare the socializing experiences of different population groups
   2) Life Stages: Can analyze a case history i terms of the developmental changes an issues for a particular life stage.
   3) Theories of Development: Can defen the choice of a particular theory in com parison with others from the same area o development and use it to analyze a sam ple of behavior.
   4) Analysis of a Social Problem: Car analyze from an historical perspectiv the origins and societal responses for specific social problem and describe cur rent methods of intervention.
   5) Testing: Issues and Methods: Can judg the appropriate use of major educationa and psychological standardized tests.

IV. Advanced Level Specialized Skill (Choose any two)
   1) Intervention with Individuals: Can use specific approach to effect change with an individual.
   2) Interventions with Groups: Can use specific approach to effect change with small group and can evaluate your effectiveness as a facilitator.
   3) Preventive — Educational Programs: Can implement a preventive educational program with a family, group, agency or community.

Note: A twelfth competency is to be selected from Section III or IV.

Example of a Competency: Theories of Development

Rationale:

An observation, an interview, a test result, o even a well done case study represents only a limited sample of a person's behavior. In order to guide our response to that behavior in the proper context, we use a theory with which to explain and generalize to other behaviors of that person. This theory can be either a private implicit one, or it can be an explicit formal theory. The private implicit theory is often made up of fragments of other theories, the pieces of which are sometimes inconsistent with each other and are likely to benefit from being made explicit. The explicit theory has the

additional advantage of public scrutiny over time and the benefit of the accumulated experience of many practitioners. The knowledge of explicit theories and how to apply them to concrete situations will help us to gain a framework for understanding the bases of specific behaviors and to begin to form our own assumptions about human behavior.

Methods of Evaluation:

1. You are to choose the area of development in which you have a special interest. Within it you will choose one theory which you will have studied in-depth and a range of related theories which you will have a general familiarity with. You will then compare your selected theory with one chosen at the time of evaluation by the certificate advisor.
2. Using the theory which you have selected, account for the successes and failures described in the "case study" given to you.

Standards:

1. Your description of the theory of your choice must be consistent with the writings of the author of the theory. The knowledge of the other theory needs to be at a level described in general textbooks on theories and systems of the area of development in question.
2. The analysis of a case study must be consistent with explanations used by informed supporters of this theory.

All Human Growth and Development Competencies follow the format used for the Theories of Development Competency. The complete text of all competencies are available in a separate publication. The summary statements for all Human Growth and Development Competencies are included here for reference purposes. The complete text of a competency must be consulted for evaluation purposes.

INSTRUCTIONAL PROGRAM

The following courses were offered in 1977-78. Offerings may vary from year to year.

HUMAN GROWTH AND DEVELOPMENT

***SURVEY OF HUMAN SERVICES**

Competencies to be addressed: Human Growth and Development Certificate: Systems for Delivery of Human Services.

Goals of course: This course is essential to all entering Human Growth students in that it provides an introduction to the Human Growth curriculum and the areas ahich it covers. The goal of the course is to provide an overview of the range of services being provided in our culture in response to a variety of human needs. We will explore different categories of human needs and the alternative ways in which our society has reacted to meet these needs. Further, we will be assessing the effectiveness and impact of these services on the population groups receiving them.
How to learn and demonstrate the competencies: Participate in class discussions and activities and complete outside-of-class assignments. Competency evaluation will take place within the structure of the course.
Field-related learning opportunities appropriate to gaining competencies: Experience with human service agencies, in the role of worker or client, will be helpful, and efforts to relate this experience to the competency will be made.
Time needed outside of class: 2-3 hours/week.
Helpful prior learning or competency completion: Since this is an introductory course, there are no special experiences or knowledge necessary to participate in the course. However, students with such experience will be strongly encouraged to share this experience within the class structure and act as resources for one another.
Materials students should purchase: To be determined; expense will be minimal.
Enrollment limitations: 50 students; each section is team-taught with two instructors.

***SOCIAL PROBLEMS IN OUR SOCIETY**

Competencies to be addressed: Human Growth and Development Certificate: Social Problems: Definition and Societal Response
Goals of course: To examine the historical process which results in variety of definitions of Social Problems. To become acquained with major current diagnostic terminology, and with problems related to reliability of these diagnoses. To gain an understanding of values and assumptions related to society's response to some of these problems.
How to learn and demonstrate competencies: Attend and participate in class discussions. Read assigned material.
Time needed outside of class: 6-8 hours/week.
Helpful prior learning or competency completion: Experience working with one or more "Social Problems".
Materials students should purchase: Xeroxed materials will be provided. Texts will be available on reserve in the library.

HOW DO WE BECOME: THE DEVELOPMENT OF HUMAN BEHAVIOR

Instructor: Gary Siperstein

Competencies to be addressed: Human Development
Goals of course: The course will help students understand differences and similarities in human behavior. An analysis will be presented of how some specific human behaviors come into being. Physical, familial and cultural influences on behavior will be considered. Brief summaries of personality and cognitive theories of development will be presented. Heredity — environment interaction will be analzed.
How to learn and demonstrate competencies: Attend clases, complete reading assignments. Exhibit an understanding of the readings through a written examination.
Time needed outside of class: 4-6 hours/week.
Materials students should purchase: A textbook will be assigned and available at the University bookstore.

OBSERVATION, INTERVIEWING AND THE DEVELOPMENT OF CASE STUDIES

Instructor: Bill Clark, Ann Fowler

Competencies to be addressed: HG&D Certificate: Collecting Information: Observation and Interviewing; Reporting Information: Developing a Case Report
Goals of course: The goals of this course are to develop the skills of observation, interviewing and report writing within the role of a critical participant-observer. The student will learn to identify his or her personal assumptions and values which influence wttt or she observes and accepts as "valid evidence".
How to learn and demonstrate competencies: Participate in class discussions, exercises, reading assignments and submit two acceptable taped interviews and case reports.
Field-related learning opportunities appropriate to gaining competencies: Work situations where there are opportunities to interview others.

Time needed outside of class: 4-6 hours/week for conducting interviews, assigned readings and report writing.
Helpful prior learning or competency completion: None needed. This is an entry course to the Human Growth and Development Certificate.
Materials students should purchase: Students will purchase *The Helping Interview* by Alfred Benjamin. Cost approximately $6.00.
Enrollment limitations: 15 students because of the interactional focus of the course.

THE CLIENT IN PUBLIC EDUCATION

Instructor: James Breeden

Competencies to be addressed: HG&D Certificate: Intervention with Groups
Goals of course: Who benefits from public schools? How is the delivery of services determined and changed? In this course the roles of students, parents, communities, employers, teachers and administrators will be examined. A variety of interventions intended to alter the resources, organization and effects of public education will be surveyed. Particular attention will be given to efforts to make schools more responsive to parents and students. Some issues to be addressed are: personnel, budgets, curriculum, discipline, desegregation, decentralization.
How to learn and demonstrate competencies: Attend course sessions. Read and discuss assigned material.
Time needed outside of class: 6 hours/week.
Materials students should purchase: To be announced.

THEORIES OF CHANGE

Instructor: Nancy Klinger

Competencies to be addressed: HG&D Certificate: Models of Change; Writing and Speaking Certificate: Technical Communication to a Professional Audience
Goals of course: The goal of this course is to explore the processes by which people change. We will examine a range of theories which account for change on an intrapersonal, interpersonal or group level. Each student will be asked to select a particular theory of change to examine in depth. As a class, we will explore the concept of change itself and the processes and conditions under which we and others believe it to occur.
How to learn and demonstrate competencies: Complete reading assignments; participate in class lectures and discussion; explore a particular theory in-depth. Competency demonstration will take place within the course through presentations made with other students to the class.
Field-related learning opportunities appropriate to gaining competencies: Experience in working with others in a helping role will be very beneficial in that it provides opportunities to test assumptions about change and to integrate theory and practice.
Time needed outside of class: 3 hours/week. More time will be needed during the period of prepering a presentation.
-6Helpful prior learning or competency completion: Students should have completed the Human Development competency in the Human Growth and Development Certificate.
Materials students should purchase: *Current Psychotherapies*, Corsini (approximately $11) Additional materials will be placed on reserve in the library.
Enrollment limitations: 25 students.

65 PLUS: THE "GOLDEN YEARS"

Instructor: Elaine Werby

Competencies to be addressed: HG&D Certificate: Life Stages.
Goals of course: To gain an understanding of the physiological, psychological and social aspects of old age and their implications for the family unit.
How to learn and demonstrate competencies: Attend class, read materials, and complete a written paper.
Field-related learning opportunities appropriate to gaining competencies: Work with the elderly.
Time needed outside of class: 2-3 hours/week.
Helpful prior learning of competency completion: Human Development.
Materials students should purchase: Xeroxed materials will be available for purchase. Total cost approximately $5.00. Additional texts will be available on reserve in library.

ATTENTION, NOT DETENTION: A PRACTICUM IN WORKING WITH CHILDREN

Instructor: Ann Fowler

Competencies to be addressed: HG&D Certificate: Interventions with Individuals (new), Behavior Management (old)
Goals of course: This course is directed toward students who are currently working with or would like to work with children, ranging in age from early childhood to early adolescence. The class will focus on sharpening observation skills to identify problem behaviors and determine their causes, and on developing treatment plans for changing or modifying those behaviors. We will look at (through readings and direct observation of on-going programs) a variety of behavior change techniques, and each student will apply a technique to a situation of his choice.
How to learn and demonstrate competencies: Within a field setting, students will identify problem behaviors, develop and implement an appropriate treatment plan, and evaluate its effectiveness. They will be evaluated on this treatment plan and its implementation by describing it in oral or written presentations.
Field-related learning opportunities appropriate to gaining competencies: Any field setting working with children is appropriate. The instructor will provide field sites where needed, but students who have appropriate work sites are encouraged to use them.
Time needed outside of class: 4-6 hours/week.
Helpful prior learning or competency completion: This is an advanced, specialization competency, thus students should have completed most of the introductory HG&D competencies, especially Models of Change.
Materials students should purchase: To be determined.
Enrollment limitations: Limited to 15 students so that the instructor can give individual time to students for placement, developing treatment plans and dealing with any implementation problems.

THE HANDICAPPED: A MINORITY GROUP

Instructor: Gary Siperstein

Competencies to be addressed: Comparative group membership experiences.
Goals of course: To explore the emerging role of the handicapped as a minority group. The architectural barriers and psychological barrier which confront the handicapped will be examined. Society's attitude toward different handicapped population will be discussed in terms of how attitudes form and how attitudes can be changed.

How to learn and demonstrate competencies: Attend class and participate in class discussions. Read assigned articles and assigned chapters in texts. Demonstrate competency through a written paper or alternative approved by instructor/evaluator.
Time needed outside of class: 6 hours/week.
Helpful prior learning or competency completion: Experience in a social or work setting with handicapped individuals is helpful but not necessary.
Materials students should purchase: All xeroxed materials and texts will be placed on reserve in the library.
Enrollment limitations: 20 students.

BLACK AMERICANS AND THE HEALTH CARE SYSTEM

Instructor: Beverly Smith

Competencies to be addressed: HG&D Certificate: Comparative Group Membership Experiences, Systems for Delivering Human Services
Goals of course: The goal of this course is to explore the ways in which the social and political position of Blacks in American society affects their health status and their experience as consumers and providers of health care.
How to learn and demonstrate competencies: Attend class and participate in discussions, complete the reading assignments. Demonstration of the competencies will involve the writing of a paper on some aspect of the course topic.
Time needed outside of class: 4-6 hours/week.
Materials students should purchase: Students will be asked to buy xeroxed copies of articles which will cost approximately $10.00.

THE FAMILY AND ITS SOCIAL CONTEXT

Instructor: Bill Clark

Competencies to be addressed: HG&D Certificate: Social Interactions: Families Schools and Peers
Goals of course: The course will try to: help students understand the functioning of the family as a system whose effectiveness is a consequence of external as well as internal relationships.
How to learn and demonstrate competencies: Complete reading assignments and participate in class discussions. Competency demonstration will be worked out with the instructor.
Field-related learning opportunities appropriate to gaining competencies: Work situations which deal with school age children and their families.
Time needed outside of class: 4-6 hours/week.
Helpful prior learning or competency completion: Completion of the Human Development competency.
Materials students should purchase: To be determined.

VIOLENCE IN THE HOME: BATTERED WOMEN

Instructor: Nancy Klinger

Competencies to be addressed: Analysis of a Social Problem.
Goals of course: Increasingly, attention and services are being directed toward the issue of violence in the home, especially as that is directed toward women. The goals of this course are to: explore what is meant by the term "battered women"; examine the problem and its causes from a variety of perspectives; look at how the problem has been dealt with in the past, both in terms of overall society response and provision of services; to learn about current resources and services for women who are being physically abused; and to generate possible strategies for intervention.
How to learn and demonstrate competencies: Participate in class lectures and discussions, complete reading assignments, complete a written project.
Time needed outside of class: 2-3 hours/week.
Helpful prior learning or competency completion: Completion of introductory Human Growth competencies is helpful but not necessary.
Materials students should purchase: Xeroxed materials will be provided by instructor, and costs will be minimal. Materials will also be placed on library reserve.

***SOCIETY'S PROBLEMS, SOCIETY'S SOLUTIONS**

Instructors: Section 1: Beverly Smith; Section 2: Paul Rosenkrantz

AN ASSESSMENT-RELATED ENTRY COURSE DESIGNED FOR BOTH NEW AND CONTINUING STUDENTS. CLASSES BEGIN TWO WEEKS AFTER THE START OF THE SEMESTER.

Competencies to be addressed: Human Growth and Development Certificate: Systems for Delivering Helping Services, Social Problems: Definitions and Societal Response
Goals of course: This course is essential to all entering Human Growth students since it provides an introduction to the Human Growth Curriculum. The goals of the course are to explore a variety of phenomena which the society has designated as social problems and to examine the methods developed by the human service system to solve these problems.
How to learn and demonstrate competencies: Participate in class discussions and activities and complete outside-of-class assignments. Competency evaluation will take place within the structure of the course.
Field-related learning opportunities appropriate to gaining competencies: Experience with human service agencies, in the role of worker or client, will be helpful and efforts to relate this experience to the competency will be made.
Time needed outside of class: 3-6 hours/week.
Materials students should purchase: To be determined; expenses will be minimal.

HOW DO WE BECOME: THE DEVELOPMENT OF HUMAN BEHAVIOR

Instructors: Section 1: Staff; Section 2: Staff

Competencies to be addressed: Human Growth and Development Certificate: Human Development
Goals of course: The course will help students to analyze how some specific human behaviors come into being. Physical, familial and cultural influences on behavior will be considered. Brief descriptions of some personality and cognitive theories of development will be presented. Heredity — environment interaction will be combined.
How to learn and demonstrate competencies: Attend classes, complete reading assignments. Methods of competency evaluation will be worked out with the instructors.
Time needed outside of class: 4-6 hrs/week.
Materials students should purchase: Textbooks will be assigned and available at UMass Bookstore.

INTERVIEWING FOR EXPERIENCED BEGINNERS

Instructor: Ann Fowler

Competencies to be addressed: Human Growth Certificate: Collecting Information: Interviewing and Observation
Goals of course: This course is offered for people who have had some experience with interviewing but feel that they need to brush up and sharpen their skills before attempting the competency. The class time will be spent discussing various techniques of interviewing, practicing those techniques in small groups, and using videotape for visual feedback. The emphasis will be on improving individual self-awareness and on increasing individual interviewing and observation skills.
How to learn and demonstrate competencies: Attend all classes, do assigned readings, tape record interviews and critique those interviews.
Time needed outside of class: 3-6 hours/week.
Helpful prior learning or competency completion: Students should have had some previous experience with interviewing, either on a job or in some other situation.
Materials students should purchase: *The Helping Interview*, Alfred Benjamin — $5.00; or *Training in Depth Interviewing*, William Banaka.
Enrollment limitations: 18 students.

REPORTING INFORMATION: WRITING A CASE REPORT

Instructor: William Clark

Competencies to be addressed: Human Growth Certificate: Reporting Information
Goals of course: Each student will develop written case reports, based on interviews conducted while completing the Collecting Information competency. Interviews conducted as prior or current field experience will also serve as case report material.
How to learn and demonstrate competencies: Attend the class, participate in class discussions and prepare written case reports.
Field-related learning opportunities appropriate to gaining competencies: On-the-job interviewing.
Time needed outside of class: 2-4 hours/week.
Helpful prior learning or competency completion: Completion of the Collecting Information competency.

MODELS OF CHANGE

Instructor: Paul Rosenkrantz

Competency to be addressed: Human Growth Certificate: Models of Change
Goals of course: The goal of the course is to explore the process by which people change their behavior, attitudes and feeling. A number of theories about that will be examined.
How to learn and demonstrate competencies: Attend class sessions and read assigned material. Method of competency demonstration will be worked out in class.
Time needed outside of class: 4-6 hours/week.
Materials students should purchase: *Persuasion and Healing*, J.D. Frank, approx. $5, *Modern Psychotherapies*, approx. $11.

CONSUMER'S GUIDE TO SOCIAL SCIENCE RESEARCH

Instructor: Gary Siperstein

Competencies to be addressed: Human Growth Certificate: Research: Issues and Methods, Reading Certificate: Library Research and other possible competencies
Goals of course: To make use of scientific articles in a general area of interest. Specifically, 1) to be able to use library sources for the purpose of identifying and locating current information in scientific journals; 2) to be familiar with basic research and statistical concepts so as to be able to read and understand scientific articles; and 3) to understand scientific principles so as to be able to judge the worth of the research.
How to learn competencies: The competency can be learned by attending class and participating in class discussion, in addition, by reading assigned chapters in texts and selected articles. Field visits will be made to a social science library. If time allows, develop and/or conduct research involving surveys and field observations. Take part in the instructors on-going research in the "social acceptance of handicapped children".
How to demonstrate competencies: Exhibit an understanding of the readings through classroom discussion, written assignments, oral presentations. Present competent, well-thought-out research critiques and an annotated bibliography.
Field-related learning opportunities appropriate to gaining competencies: Experience in any type of community programs, institutions, etc.
Time needed outside of class: 6 hours/week.
Helpful prior learning or competency completion: Knowledge of statistics is helpful.
Materials students should purchase: All on reserve in the CPCS Library.

PERSONALITY THEORY

Instructor: Paul Rosenkrantz

Competencies to be addressed: Human Growth Certificate: Theories of Development
Goals of course: The goal of this course is to analyze the concept of personality and to examine some of the main theories dealing with the development of personality of an individual.
How to learn and demonstrate competencies: Attend classes, complete reading assignments. Methods of evaluation of competency will be worked out with the instructor.
Time needed outside of class: 4-6 hours/week.
Helpful prior learning or competency completion: Completion of Child Development competence essential. Completion of the Theories of Change competency would be helpful.
Materials students should purchase: Textbooks will be assigned and available at the UMass. Bookstore.

WOMEN AND THE HEALTH CARE SYSTEM

Instructor: Beverly Smith

Competencies to be addressed: Human Growth Certificate: Systems for Delivering Helping Services, Analysis of a Social Problem
Goals of course: The goal of this course is to explore the relationship of women to the health care system. The historical development of health services for women, the historical and present positions of women health workers and the current issues related to the delivery of health services for women will be examined.
How to learn and demonstrate competencies: Attend classes, complete the reading assignments. Visit agencies providing health services to women and write a report on these.
Time needed outside of class: 4-6 hours/week.
Materials students should purchase: Stu-

dents will be asked to buy xeroxed copies of articles which will cost approximately $8.00.

ISSUES OF ADOLESCENCE AND YOUNG ADULTHOOD

Instructor: William Clark

Competency to be addressed: Human Growth Certificate: Life Stages
Goals of course: The "phenomenon" of adolescence and young adulthood will focus on: 1) the theorists who attempt to characterize this period as one of conflict, and 2) the literature and research which is concerned with the adolescent's and young adult's family, schools, and peer group.
How to learn and demonstrate competencies: Attend class, participate in group discussions and complete reading assignments, as well as a final paper.
Field-related learning opportunities appropriate to gaining competencies: Field work with adolescents.
Time needed outside of class: 3-6 hours/week.
Helpful prior learning or competency completion: Students should have completed entry level competencies of the Human Growth Certificate.

THE AMERICAN FAMILY

Instructors: Elaine Werby and Carter Jefferson

Competencies to be addressed: Human Growth Certificate: Social Interaction; Role and Identity Certificate: Who Am I? Values Certificate: Values and Choice, Value Change
Goals of course: 1) to examine family process (stages of family development and the ways in which family values, rules and behaviors are passed from generation to generation) and the interaction of family systems with larger social systems; 2) to nompare changing family styles in diverse ethnic groups.
How to learn and demonstrate competencies: Examining personal experiences and those of other class members inside and outside of class through structural exercises, role playing, and reflection; reading assigned articles; writing papers based on personal experience and/or interviews with family members.
Time needed outside of class: 3-4 hours/week.
Materials students should purchase: Articles to be distributed in class — maximum $10.
Additional Information: Students should be willing to share with classmates and teachers at least some information about the workings of their own families.

TITLE XX AND THE PUBLIC SOCIAL SERVICE SYSTEM

Instructor: Ann Withorn

Competencies to be addressed: Human Growth and Development Certificate: Systems for Delivering Helping Services, Social Problems; Community Change Certificate: Social Welfare.
Goals of course: To examine Title XX of the Social Security Act as a way of understanding the range of problems requiring social services and the structuring of a multi-agency service system. An overriding goal will be to help students understand their current or potentiat employment in terms of its relationships to the system of sociel services funded by Title XX. Course is especially designed for those involved in Title XX service work: homemaking, day care, foster care, family treatment, etc.
How to learn and demonstrate competencies: Attend class, write one short paper and complete a larger project. The short paper will demonstrate understanding the origins, administrative development and regulations of Title XX. The project will involve choosing one area of Title XX services and exploring 1) the nature of the problems addressed by the services; 2) the relationship of the service chosen to other Title XX services and services outside the Title XX mechanism; and 3) ways in which service delivery could be modified to better address the relevant public and/or to create better links with other parts of the service system.
Time needed outside of class: 3 hours/week.
Materials students should purchase: Xeroxed copies will be available — less than $8.00.

PSYCHOLOGICAL TESTS: TOOLS FOR UNDERSTANDING PEOPLE

Instructor: Ann Fowler

Competencies to be addressed: Human Growth Certificate: Testing: Issues and Methods.
Goals of course: This course is designed to familiarize students with a broader range of psychological tests, and the types of judgments made from them in the human services. Class discussion will focus on the pros and cons and ethical implications of testing, as well as the general principles of test construction, how specific tests work and what their results mean.
How to learn and demonstrate competencies: Do all reading assignments, participate in class discussions, prepare an oral or written report on one psychological test, and take a final exam.
Time needed outside of class: 3-6 hours/week.
Helpful prior learning or competency completion: Some knowledge of statistics is helpful and, of course, any exposure to psychological testing through a job will also make the material easier to comprehend.

RACISM: A BLACK PERSPECTIVE

Instructor: William Clark

Competencies to be addressed: Human Growth Certificate: Analysis of a Social Problem
Goals of course: To examine the tools of racism in the Euro-American culture and the mechanisms which sustain racism.
How to learn and demonstrate competencies: Attend classes, participate in class discussions and write a final paper.
Time needed outside of class: 4-6 hours/week.
Helpful prior learning or competency completion: Students should have completed the entry level competencies of the certificate.

EDUCATION FOR THE PEOPLE: COMMUNITY EDUCATION FOR ADULTS

Instructors: Arlene Fingeret and Nancy Klinger

Competencies to be addressed: Human Growth Certificate: Preventive Educational Programs, Theories of Development; Writing and Speaking Certificate: Advocacy, Analysis, Technical Communication
Goals of course: The Greater Boston area is filled with programs calling themselves "community education", "adult education", or "community schools". What do these terms mean? What community education programs exist in Boston? How do they meet the learning needs of adults? In this course, we wilt explore these questions, and through that exploration meet the following goals: 1) define community education, 2) examine the learning needs of adults and theories of adult learning, 3) de-

velop skills in program development and evaluation, 4) refine writing skills in advocacy, analysis and report writing.
How to learn and demonstrate competencies: Active class participation and completion of outside assignments. There will be a field work component in which you will be required to spend some time looking at a community education program. You will prepare a written or oral presentation.
Field-related learning opportunity appropriate to gaining competencies: Each class member will have an opportunity for field work through examination of a community education program.
Time needed outside of class: 3-4 hours/week.
Helpful prior learning or competency completion: We welcome all students interested in community education and adult learning. The course is particularly appropriate for students who have completed their introductory competencies in Human Growth & Development and who are ready to work on intervention competencies. Interested students who are not in Human Growth & Development might consider developing this area into an Independent Interest certificate.

PRACTICUM: WORKING WITH GROUPS

Instructor: Nancy Klinger.

Competency to be addressed: Human Growth Certificate: Interventions with Groups.
Goals of course: To apply theoretical knowledge about the functioning of groups to actual working with a group. The class will be our laboratory to develop and demonstrate skills in group leadership. Each student will be asked to use her/his knowledge of group processes to diagnose, plan, and direct the activities of the group.
How to learn and demonstrate competencies: Active participation in class activities and completion of outside assignments. Competency demonstration will take place within the class through the rotation of leadership responsibility among members of the class.
Field-related learning opportunities appropriate to gaining competencies: Experience in leading groups will be helpful but not necessary.
Time needed outside of class: 3-5 hours/week.
Helpful prior learning or competency completion: The Human Growth competency **Models of Change is a prerequisite** for enrolling in this course. Completion of the General Center Small Groups certificate is strongly recommended, particularly the Theory of Change and Analysis of Small Group Behavior competencies. More importantly, students should have: 1) a good grasp of theory(ies) of group process; and 2) working knowledge of group process as a result of participation in groups. If you don't have the above knowledge/experiences, it is important that you speak with the instructor beforehand to explore ways of gaining this experience before the course begins. The course will not teach a range of specific theories. Instead, the instructor will assist students in integrating theoretical knowledge already gained with planning and conducting group activities. It is important that you have enough experience with group process to feel comfortable with being a full participant in group activities conducted by other class members.
Materials students should purchase: Xeroxed materials may be purchased from the instructor at minimal cost. A text will also be assigned, estimated cost $12.
Enrollment limitations: 15.

PRACTICUM: FIELD SUPERVISION

Instructor: Nancy Klinger

Competency to be addressed: Human Growth Certificate: Interventions with Individuals.
Goals of course: The goal of this course is to provide on-going case supervision as a means of developing and demonstrating competence in interventions with individuals. Each student will work with another individual (or individuals) through a group placement arranged by the instructor with an agency in the Boston area. Work with clients will be conducted within the agency, and the major supervision for this work will be provided on a group basis by the instructor. The agency may require participation in their staff or team meetings.
How to learn and demonstrate competencies: Work individually with a client or clients on a weekly basis during the semester; participate actively in group supervision sessions; participate in meetings of case conferences requested by the agency.
Field-related learning opportunities appropriate to gaining competencies: This field experience will be the means of learning and demonstrating the Intervention with Individuals competency. Competency evaluation will occur on an ongoing basis within the context of the course.
Time needed outside of class: 4-6 hours/week.
Helpful prior learning or competency completion: The following Human Growth competencies must be attained before registering for this course: Models of Change, Collecting Information, and Reporting Information. PERMISSION OF THE INSTRUCTOR IS NECESSARY TO ENROLL IN THIS COURSE. If you wish to enroll, please schedule an appointment with the instructor AS SOON AS POSSIBLE since enrollment is limited.
Materials students should purchase: A specific text will not be assigned. Students may need to purchase one or two books in the theory area in which they are most interested. Xeroxed materials will be available at minimal cost from the instructor.
Enrollment limitations: 6 students.

PRACTICUM IN INTERVENTIONS WITH INDIVIDUALS

Instructor: William Clark

Competencies to be addressed: Human Growth Certificate: Interventions with Individuals
Goals of course: This practicum will offer supervision to students who are already working in settings (paid or volunteer) in which they can obtain the Interventions competency. Students will design interventions and implement them in a field setting and bring to the class problems and issues that arise in this process. The class will not *teach* theory but will deal with theory as it is addressed and used in the students' interventions.
How to learn and demonstrate competencies: Students will design and implement interventions in a setting of their choosing and will present their work in class.
Field-related learning opportunities appropriate to gaining competencies: Students must have some involvement in a field setting.
Time needed outside of class: 6-8 hours/week.
Helpful prior learning or competency completion: This is an "exit" level competency. Students should have completed most of the entry level competencies in the Human Growth curriculum, especially Models of Change.
Enrollment limitations: 15 students.

GROWING UP:
ON BECOMING AN ADULT

Instructors: Frank Davis and Emilie Steele

Competencies to be addressed: Human Growth Certificate: Life Stages; Values Cert.: What Are Values?, Values and Choice; Writing and Speaking Cert.: Experiential Communication, Analysis; Reading Cert.: Comprehending & Judging the Work. Not all students will complete all competencies.
Goals of course: 1) to discuss the physical, social, and emotional issues faced in adulthood; 2) to consider various theories of adult development; 3) to think about the implications of adult development for the helping professions.

PLEASE SEE COMPLETE COURSE DESCRIPTION UNDER APPLIED LANGUAGE AND MATH.

CHILD ABUSE

Instructor: ElaineWerby

Competencies to be addressed: Human Growth Certificate: Analysis of a Social Problem.
Goals of course: The goal of this course is to explore the problem of child abuse. Some of the issues to be examined are definition and identification of the problem, societal attitudes and values, the extent of the problem, and ways in which society responds.
How to learn and demonstrate competencies: Attend class and participate in discussion. Complete reading assignments.
Time needed outside of class: 4 hours/week.
Materials students should purchase: Xeroxed copies of required reading materials will be available for purchase. Additional texts may be purchased, if desired.
Helpful prior learning or competency evaluation: Students should have completed entry level competencies in Human Growth & Development Certificate.

LEGAL EDUCATION SERVICES CENTER
DESCRIPTION OF THE CERTIFICATES

Degree Requirement: A certificate from the Legal Education Services Center fulfills the graduation requirement for one career certificate.

The certificate has been designed to reflect those skills and understandings which are most used by law workers (sometimes called paralegals) in the public sector. Job roles might include interviewing and investigation in law offices advocacy for consumers, juveniles, the handicapped, or some other group; administration in any public agency; counseling or advocacy in some branch of the criminal justice system (parole, probation, diversion programs, etc.); research and evaluation of legislation.

The purpose of the Law Center is to improve the quality and decrease the cost of a legal services. Our primary focus is the preparation of law workers for a wide variety of law jobs, mainly, though not exclusively — in publicly supported institutions. In addition to education and training we are concerned with the development of career lines for law workers. As a result, we are involved in encouraging the most economic and effective development of law workers and other law professionals, including the invention of new organizations to provide legal services primarily through law workers.

Law Center Courses are offered twice, once in the morning scheduled time, once in an evening schedule. We assume that a student devoting full time to the effort could complete the program in one school year. Competencies in our courses, on the job, in a volunteer placement, or through independent study. Most students in the Law Center complete the Law Certificate as part of their B.A. degree. A limited number of places are also available for students who wish to complete only the Law Certificate.

LEGAL EDUCATION SERVICES
CERTIFICATE

Twelve are required. (Starred competencies are required; others are optional)

1) Law Workers and the Delivery of Legal Serpices: A) Can evaluate the impact Law Workers can have on the way legal serv- are delivered. B) Can analyze the influences encouraging the use of Law Workers and those discouraging that use.

*(Choose 1 or 2)

2) Provision of Legal Services: Design a Plan for providing legal services.
3) Judiciary: Can obtain information from the Mass. District Court about progress of a case, and understands the basic structural features of the Mass. Court system.
4) Administrative Agency: Can obtain from an Administrative Agency information describing the procedure by which it makes most of its rules, and the procedure by which it conducts its hearings.
5) Interviewing: Determine goals of legal interview; conduct an initial interview, evaluate results of interview.
6) Investigation: Determine goals of the investigation, identify potential sources of the information needed, gather the information and report and evaluate your results.
7) *Legal Research: Determine the answers to a given problem, based on the relevant statutes, regulations and cases.
8) *Research Analysis: Can research and analyze a legal problem, a legal problem for which there are conflicting or vague precedents.
9) *Legal Reasoning: Demonstrate some of the basic skills of legal reasoning, especially dealing with ambiguity. Analyze cases, analogize, draw distinctions, and manipulate the relationship of facts and legal rules.
10) *Negotiation: Prepare for, conduct, and assess a negotiation session.
11) Administrative Advocacy: Prepare, deliver, and assess the effectiveness of a final argument designed to persuade the hearing officer to rule in favor of your side in an administrative hearing.
12) Implementation: Compare expressed intent of a law with ways in which it is carried out by appropriate government agencies.
13) Ethics of Role: Can understand and use ethical standards, both personal and those of legal professional groups, and can evaluate the enforcement of ethical standards.
14) Values of Law: Identify values implicit in American law.
15) History of Law: Trace the development of a law or legal institution.

(Choose one of 12, 13, 14, or 15)

EXAMPLE OF A COMPETENCY:
NEGOTIATION

The following competency in Negotiation is typical in form of those in the Center.

GIVEN
1) A dispute for which you are to represent one of two sides in an upcoming negotiation session.
2) Limited issue on which you must reach agreement.

3) A client or client group which has indicated total confidence in your ability to represent their interests fairly.
4) An opponent at the negotiation table with whom you have no necessary continuing relationship.

You will be able to:

I. Prepare for the negotiation.
II. Conduct the negotiation.
III. Assess your outcome and your effectiveness.

I. Preparation should include:
  A) Identification of the elements of your position including:
    1. What you would like most to win
    2. What power and influence you can exert
    3. What threats you can use against the other side
    4. The constraints under which you must operate (e.g. time, money, law, politics, etc.)
    5. What you would be willing to settle for
  B) Identification of the basis for your opponent's position including:
    1. The oppositions goals
    2. What power and influence can be used against you
    3. The constraints under which the opposition must operate
    4. What they will be willing to settle for
  C) Identification of the Opposition's perception of your position including:
    1. Their perception of your goals and the strengths and weaknesses behind your position
    2. The perception you would like them to have of your position
  D) Incorporation of your analysis of A, B, and C into a plan of action including:
    1. What you will ask for or demand (including where you want to negotiate, who you want to participate, etc.)
    2. Which facts you will reveal
    3. Which facts you will hide.
    4. What arguments you will use
    5. What kind of relationship you want to develop with your opponent (cooperative, hostile, seductive, threatening, tense, relaxed, etc.)
    6. How you want your opponent to perceive you (slick, professional, naive, predictable, irrational, etc.)
    7. What interpersonal tactics you can use to support the image you want to portray (tone of voice, vocabulary, facial expressions, gestures, style of dress, bluffs, etc.)

II. Your performance in the negotiation session should reflect the elements of preparation

III. Assessment should include:
  A) Substantive outcome
    1. The list of substantive gains and losses for your side
    2. The list of concessions or gains made by your opposition
  B) Effectiveness of your tactics
    1. A statement of which arguments seemed most effective in moving you toward your goal
    2. A statement of what aspects of your bargaining position proved to be the weakest or hardest to overcome
    3. A statement of which aspects of your interpersonal approach seemed most and least effective

All Legal Services Education competencies follow the format used for the Negotiation competency. The complete text of all competencies are available in a separate publication. The summary statements for all Legal Services Education Center competencies are included here for reference purposes. The complete text of a competency must be considered for evaluation purposes.

THE CPCS COMMUNITY ADVOCATES LAW OFFICE

The Community Advocates Law Office of the CPCS Law Center provides legal services for indigent consumers residing in Greater Boston as well as providing a field setting for CPCS students to work toward the Law Certificate.

Each participating student will devote at least 15 hours each week to working on actual cases in a team with other paralegal students and supervising attorney who is a member of the Law Center faculty.

Students can learn and demonstrate up to nine competencies by joining the Clinic staff for one year. Students wishing to combine one semester of Clinic work with more courses of other field experience can apply for one-semester position in the Law Clinic.

Those competencies which may be addressed through Clinic work in 1977-78 include: Consumer Law; Interviewing; Investigation; Negotiation; Basic and Advanced Legal Reasoning; Statutory and Case Research; Civil Procedure; Technical Writing and Ethics of Role.

Those wishing to work in the Law Clinic in 1977-78 should apply directly to the Law Center at the time of advance registration.

INSTRUCTIONAL PROGRAM

The following courses were offered in 1977-78. Offerings may vary from year to year.

LEGAL EDUCATION SERVICES

LEGAL RESEARCH

Instructor: Daisy Janey

Competencies to be addressed: Legal Research in the Law Certificate and Library Research in the Reading Certificate
Goals of course: To introduce students to the resources of a law library, the mechanics of statutory and regulation research and the form of accurate citations.
How to learn and demonstrate the competencies: Participate in class, tour at least one law library. Use the materials in the law library to find and explain relevant legal authority and precedent for problem(s) given by instructor; write up findings indicating process used.
Time needed outside of class: 3 hours/week for research in Library.
Helpful prior learning or competency completion: Familiarity with any law library, or work in some law-related field.
Materials students should purchase: Xeroxed materials supplied by instructor; estimated cost $3.00.

ADMINISTRATIVE AGENCIES

Instructor: Daisy Janey

Competencies to be addressed: Administrative Agencies in the Law Certificate
Goals of course: To assist the student in acquiring the necessary skills and procedures for obtaining information from administrative agencies, with emphasis on their policy and decision-making mechanisms and their adjudicative hearing procedure.
How to learn and demonstrate competencies: Through class discussion, reading the assigned materials and actually visiting an administrative agency, talking to staff persons,

cross-checking the information for accuracy, and writing it up.
Time needed outside of class: 2 hours/week for reading and time required for agency visit.
Helpful prior learning or competency completion: Work in an administrative agency helpful but not required.
Materials students should purchase: Xeroxed material supplied by instructor; estimated cost $3.00.

LEGAL REASONING AND RESEARCH ANALYSIS

Instructor: Brad Honoroff

Competencies to be addressed: Legal Reasoning; Research Analysis (proposed new competency); Portions of the Writing Competencies — Analysis, Advocacy
Goals of course: To learn two interrelated skills: the first is the ability to reason with the law — to search out the "meaning" of statutes and cases, to challenge regulations, and to work with the interplay of "facts" & "rules"; the second is the ability to find, analyze, and effectively utilize relevant legal research materials. A related goal is to encourage clear and well-organized writing as well as reasoning.
How to learn and demonstrate competencies: Participating in class discussions, reading the materials prepared for the course and doing the set of exercises prepared for the course.
Field-related learning opportunities appropriate to gaining competencies: Job or placement in law-related work where that work involves doing legal research.
Time needed outside of class: 2-3 hours/week for reading assignments plus several hours for each research exercise.
Helpful prior learning or competency completion: This course should be taken in conjunction with "Legal Research" and "Administrative Agencies" unless one is already with all materials of a law library.
Materials students should psrchase: Materials prepared by the instructor — estimated cost $6.50.

***NEGOTIATION**

Instructor: David Matz

Competencies to be addressed: Negotiation; Ethics of Role
Goals of course: To teach the uses of power and leverage in a one-to-one negotiation setting. By repeated role play drills, in class and out, student will work with progressively more

complex techniques of persuasion. While using various forms of power, the student will become sensitized to the ethical problems inherent in such use. Alternative ways of coping with these ethical problems will be discussed. Course will also serve as introduction to Law Certificate, focusing on Negotiation and Ethics of Role as specific entry competencies.
How to learn and demonstrate competencies: Class discussion and many role-plays.
Field-related learning opportunities appropriate to gaining competencies: Any volunteer or job position that permits using negotiation skills.
Time needed outside of class: A few hours per week to conduct occasional negotiations.
Helpful prior learning or competency completion: Negotiation experience.
Materials students should purchase: Xeroxed material costing $1.50.

INCOME LAW FOR THE POOR, THE AGING AND THOSE GETTING POORER

Instructor: Phyllis Freeman

Competencies to be addressed: Substantive Law (one or more) and Implementation from Law Certificate; Social Welfare from Community Change Certificate
Goals of course: We will take up problems in areas of substantive law selected from those used in the actual representation of clients by the Community Advocates Law Office (such as unemployment, Supplemental Security Income, bankruptcy, utilities, consumer, Aid to Families with Dependent Children, General Relief, Social Security, but not all of these). This course is mandatory for any student wishing to enter the Community Advocates Law Office and important background for anyone involved in advocacy for low income people.
How to learn and demonstrate competencies: To learn there will be readings, mock cases, class discussions and lectures; to demonstrate competencies, students should follow the criteria and examples of evaluations.
Time needed outside of class: 4 hours/week.
Helpful prior learning or competency completion: This course is a prerequisite for entering the Community Advocates Law Office for Spring Semester 1977-78. Students may enroll in the course *simultaneously* with taking Legal Reasoning and Research or once those competencies have been *completed*. Students wishing to enroll before learning reasoning and research must get permission from the instructor.

COMMUNITY ADVOCATES LAW OFFICE

Instructors: Phyllis Freeman, Brad Honoroff, Daisy Janey

Competencies to be addressed: The following competencies can be fully demonstrated as a part of a student's work in the clinic: Interviewing, Investigation, Negotiation, Legal Strategy, Technical Writing, and possibly Administrative Advocacy. The office will provide experience and material for other competencies though a student will have to do various amounts of additional work to achieve them. These other competencies include: Substantive Law, Administrative Agencies, Ethics of Role and Evaluation and Implementation as well as some General Center competencies.
Goals of course: To assist students in preparing themselves to work as paralegals, through group classroom study and through actual participation, under supervision, in representing actual clients with general income maintenance problems, such as consumer problems, unemployment compensation, bankruptcy, welfare, etc.
How to learn and demonstrate competencies: Learning will be accomplished through group training sessions as well as through the practical experience of working on actual cases. The first set of competencies tisted above may be demonstrated through actual observation and evaluation during work in the law office; the others require additional presentations, written or oral.
Field-related learning opportunities appropriate to gaining competencies: This is combined field placement and classroom program.
Time needed outside of class: Besides the four hours/week scheduled training sessions, student must commit an additional 11 hours/week to law office.
Helpful prior learning or competency completion: For the Fall '77 session, the competencies in Legal Reasoning & Research are required, and preference will be given to students who have completed additional law courses and/or are close to graduation. For Spring '78 the prerequisites will be Income Law, Administrative Agencies, and either Legal Reasoning & Research Analysis, or Legal Reasoning plus Legal Research.
Materials students should purchase: Xeroxed or printed material available in law office.
Enrollment limitations: 18 students.
Additional information: To apply to work in the law office, please submit your name, with address and phone, to Brad Honoroff (Faculty mailbox on 12th Floor) by April 27. Students who are accepted will be given a supervising faculty member's Directed Study number to use for Registration in Law Office.

DELIVERY OF LEGAL SERVICES

Instructor: David Matz

Competencies to be addressed: Delivery of Legal Services; Judiciary
Goals of course: The goal of the course is to acquaint the student with the major problems of providing legal services in this country and with some of the approaches currently being tried to solve those problems. The course also will describe the function of the courts in Massachusetts.
How to learn and demonstrate competencies: Class discussion will prepare the student for dealing with a problem (geared to the Delivery of Legal Services Competency) to which the student must respond. For the Judiciary competency, the student will visit one or more courts and obtain the information required by the competency.
Field related learning opportunities appropriate to gaining competencies: Court visits.
Time needed outside of class: One or two visits to courts.
Materials students should purchase: Xeroxed materials — $3.00.

PRINCIPLES OF JUSTICE IN AMERICAN LAW

Instructor: Brad Honoroff

Competencies to be addressed: Law Certificate: Values in Law, Substantive Law, History of Law
Goals of course: 1) to identify the principles, assumptions or models of "justice" that are inherent in selected areas of fundamental American law (e.g. contracts, torts, criminal law). These principles may be explicitly recognized as aims of the law or may be implicit in the workings of the legal system. One may eventually judge them to be unfair or indeed "unjust", but the first task is to identify and explain their existence; 2) to use these principles, etc. to organize and understand various areas of American substantive law.
How to learn and demonstrate competencies: Do assigned readings, participate in class discussions.

Time needed outside of class: 3-5 hours/week.
Helpful prior learning or competency completion: Legal Reasoning, Legal Research, Research Analysis.
Materials students should purchase: Selected readings including cases and various kinds of writings (some difficult at first) on law collected by the instructor. Estimated cost — $10.
Enrollment limitations: 30 students, to promote full discussion.

MORAL AND LEGAL REASONING

Course taught at Columbia Point

Instructors: Brad Honoroff and Robert Swartz

Competencies to be addressed: Values in Law, History of Law
Goals of course: To focus on several difficult moral and legal problems — such as abortion, reverse discrimination, conscientious objection — and compare, contrast, mix or separate the methods for resolving them represented by moral and legal reasoning.
How to learn and demonstrate competencies: Do assigned reading, participate in class discussions.
Time needed outside of class: 3-5 hours/week.
Helpful prior learning or competency completion: None required, Legal Reasoning would be helpful.
Materials students should purchase: To be prepared by the instructors — $15.
Enrollment limitations: None for CPCS.

LEGAL ADVOCACY

Instructor: Daisy Janey

Competencies to be addressed: Law Certificate: Administrative Advocacy and Substantive Law; Writing and Speaking Certificate: Advocacy
Goals of course: To teach advocacy skills and how to use them in an administrative agency hearing, to teach law relating to unemployment rights.
How to learn and demonstrate competencies: Administrative Advocacy of the Law Certificate and Advocecy in Writing and Speaking Certificate will be demonstrated in a role play; Substantive Law will be demonstrated in a paper.
Field-related learning opportunities appropriate to gaining competencies: Work as an advocate conducting hearings.
Time needed outside of class: Approximately 4 hours/week.
Helpful prior learning or competency completion: Legal Reasoning & Research Analysis, Legal Research and Administrative Agencies.
Materials students should purchase: Xeroxed materials distributed in class; cost estimated at $5.00.

LEGAL STRATEGY

Instructor: Phyllis Freeman

Competencies to be addressed: Law Certificate: Legal Strategy, Law and Values; Writing Certificate: Advocacy, Technical and Lay Communication
Goals of course: This course is designed to be a method for students to integrate their grasp of fact gathering, research, reasoning, negotiation, preparation for administrative hearings, organ argument. Direct and cross examination of witnesses in several mock cases will be role played from the initial contact with the client through the hearing. The emphasis will be on how the various stages in a case affect the outcome and how to win a case by planning at the start what you want to accomplish at each subsequent stage.
How to learn and demonstrate competencies: Participate in the mock cases in class and do the required out-of-class work; or present a case you have done earlier in which you can show thorough strategizing and preparation; or fully prepare a real or hypothetical case and submit the materials to the evaluator.
Field-related learning opportunities appropriate to gaining competencies: Community Advocates Law Office at CPCS; placement in another law office, agency or community project where there is an opportunity to prepare cases.
Time needed outside of class: 4-6 hours/week.
Helpful prior learning or competency completion: Legal Research, Administrative Agencies, Legal Reasoning, Negotiation and Substantive Law. Should take Administrative Advocacy simultaneously, if not before.

JUVENILE LAW

Instructor: Staff

Competencies to be addressed: Law Certificate: Substantive Law competency, Law and Values; Values Certificate: Values A
Goals of course: To familiarize students with the substantive law, court and administrative procedures involved in resolving problems for juveniles. The kinds of issues to be discussed will involve schools and learning, families and custody, delinquency and the police. The laws to be covered include Special Education (Chapter 766), Children in Need of Services (CHINS), Criminal Law and Care and Protection.
How to learn and demonstrate competencies: Class participation, sample cases.
Time needed outside of class : 3-4 hours/week.
Materials students should purchase: To be available through the instructor.
Enrollment limitations: Limited to 15 current CPCS students, as an additional 25 students will be enrolled in this course as part of an agreement between CPCS and the Teen Center Alliance under a federal grant.

WOMEN AND THE LAW

Instructor: Staff

Competencies to be addressed: Substantive Law, Law and Values
Goals of course: To familiarize students with developing areas of law involving women. The focus will be on family law and various kinds of discrimination against women: employment, credit, and property ownership.

College of Professional Studies

The College of Professional Studies is the newest College at the University of Massachusetts at Boston. The College currently offers programs in:

MANAGEMENT including concentrations in

- Accounting
- Health Services Administration
- Human Resource Management
- Management Information Systems
- Management Science
- Marketing
- Operations Management
- Private Financial Management
- Public Financial Management
- Public Management
- Public Policy Analysis

ENGINEERING — a cooperative program with the University of Massachusetts at Amherst, involving two years' work at each campus and leading to majors in Chemical, Civil, Electrical, Industrial and Mechanical Engineering.

When it reaches full size, the College will offer programs in a number of other professional fields. The College is responsible for both the professional and general education of its students and the curriculum emphasizes relationships between the liberal arts and sciences and career-oriented studies.

The College seeks to enroll an academically talented student body that is broadly representational of the population of the Boston area, including men and women from all socio-economic and ethnic backgrounds. The programs are intended to serve students first out of high school and older students with some career experience. The College is particularly eager to offer opportunities in the fields of Management and Engineering to persons from groups that have been traditionally underrepresented in these fields, especially women and minorities.

The faculty of the College is made up of persons from both academic and practitioner backgrounds. Some have spent their lives as teachers and scholars. Others have had careers in business or government. Others have moved back and forth between academic and applied work. In their teaching, all members of the faculty seek to balance attention to basic ideas and tools with practical applications.

The Management Program

The Management Program is a course of undergraduate study for persons who wish to prepare for managerial careers in business, government, or other institutions. Students may enter the program as freshmen or as transfers. For those who begin as freshmen, the program will normally take about four years. Transfer students will be given advanced standing based upon their previous study. The program is open for both day and evening study for full-time and part-time students. The program leads to a bachelor's degree in Management.

The idea of a program in Management, as distinguished from programs in Business or Public Administration, is relatively new. This University like several others in the nation, has developed this type of program because the problems and requirements of managing institutions of all kinds have become similar. Also, it is increasingly common for managers to move back and forth between industry and government during their careers. The Management Program, therefore, incorporates the modern concepts of managerial training and provides students with a versatile preparation for work in a wide variety of institutions.

The Management Program has two basic parts. One part, the Applied Component, offers a practical preparation for managerial work. The second part, the General Education Component, offers students a university-level experience in the liberal arts and sciences. These two components, though different in emphasis, are mutually reinforcing; the problems encountered in the Applied Component provide opportunities for students to put to practical use ideas and values encountered in their general education; the ideas developed in the General Education Component provide perspective on the issues and emphases associated with the applied part of the curriculum.

The Management Curriculum and Degree Requirements

To receive a Bachelor's Degree in Management, each student must complete requirements in the Applied Component and in the General Education Component. In addition, each student must satisfy certain Campus requirements. These requirements can be satisfied by:

- Taking courses offered by the Management Program and other Colleges of the University of Massachusetts at Boston, as appropriate;
- Transferring credit for courses taken at other accredited two and four year institutions, as appropriate, including courses taken through the Northeastern Exchange Program;

Departmental Courses and Requirements

• Completing and receiving recognition for examinations offered by the College Level Examination Program, as appropriate; and
• Demonstrating the requisite proficiency through an examination prepared by the Management faculty.

The policies governing transfer of credits from other institutions, recognition of the College Level Examination Program, and the proficiency credit-by-examination option are described in a separate section below. Students interested in satisfying any of the College of Professional Studies Program requirements by these or other means not listed above should also consult with the staff of the College's Coordinator of Student Support Services.

The following paragraphs detail the requirements for completion of a Bachelor's Degree in Management for all students except those who entered the Management Program as transfers in September, 1975, and January, 1976; requirements for those transfer students are set forth in the document entitled *Requirements for the Bachelor's Degree in Management* — July, 1975, copies of which are available from the Office of the College of Professional Studies.

Applied Component

There are four parts to the applied component of the Management Program. Each part represents a stage in a student's overall development as a future manager, and for this reason most students will proceed through the four parts in the order in which they are listed here. The four parts are: Introductory Courses; the Management Core; the Management Concentration; the Internship.

The following table indicates the number of credit hours of required work associated with each part of the Applied Component:

- Introductory and Skills	6-8*
- Core	26
- Concentration	9-15
- Internship	4-8

*One credit hour is generally associated with one hour of classroom work each week for a semester.

Introductory Courses

The college does not expect most entering students to have clear plans for all four years of college or for their careers. For this reason, the first part of the Management Program emphasizes opportunities to explore professional academic interests and to build basic intellectual skills. Coursework at this level is designed to be useful to students whether they continue on to upper division work in Management or transfer to another program or field. The Applied Component of the Management Program includes three Introductory and Skills Courses. They are:

MGT 100 Introduction to Management

This course offers students an initial experience with managerial problems and processes and with the Management curriculum. This course is taught by the Management faculty. It should normally be taken in the first semester of the freshman year.

MGT 200 Managerial Statistics

A one semester course in Managerial Statistics will provide students with essential tools for coursework later in the program and for future work. This course will normally be taken in the sophomore year.

Economics

At least one semester of Economics is required of all students. The course can be taken in a liberal arts college and should be completed during the freshman or sophomore years.

Students entering as freshmen must complete or otherwise demonstrate the proficiencies associated with these introductory courses. Students entering as transfers with more than 40 credits toward graduation must complete Economics and Managerial Statistics unless their previous education has satisfied these requirements.

Management Core

This part of the curriculum introduces students to the major functions performed by all institutions and to the relationships among these functions. The program is intended to help students understand how institutions work and how any specific managerial position relates to a total organization. The Core courses also introduce students to the areas of specialization within Management, so that they will understand the variety of managerial activities needed by all organizations and the different careers for which the Management Program can prepare them. The Core consists of 8 courses which are normally taken during the sophomore and junior years. All students must complete or otherwise demonstrate the proficiencies associated with these Core courses.

Management of Financial Resources (MGT 340 and MGT 341): this two-course sequence studies the means by which institutions obtain, allocate and keep records about financial resources and introduces students to the fields of Accounting, Budgeting and Financial Management.

Management of Human Resources (MGT 350 and MGT 351): this two-course sequence provides students with analytical tools and behavioral skills useful in the management function of planning, organizing, directing and controlling human resources. Students are introduced to various models of organizational structure and functioning and become proficient in designing organizational units and selecting appropriate styles of management.

Organization and Environments (MGT 335): This course explores interactions between the organization and its environment and how these interactions affect the structure and behavior of the organization.

Marketing Management in the Public and Private Sectors (MGT 331). This course explores the field of Marketing by introducing students to: 1) the analysis of consumer or client groups and the distribution networks through which they may be reached and 2) the development of marketing programs organizations use to adapt to and influence their customers and distribution systems.

Management Science (MGT 320, Operations Research and MGT 321, Operations Management): this two-course sequence develops important skills in quantitative methods and applies them to such problems as production management, scheduling, service delivery and inventory control.

Students who enter the Management Program without having completed the Essential Skills Requirement in Quantitative Methods (see General Education Requirements) must do so prior to taking Operations Research.

The Management Concentration

The Concentration consists of a set of specialized courses in a sub-field of Management, typically three to five in number, normally taken during the junior and senior years. Intended to help students acquire the specific skills and knowledge needed to begin their careers, the Concentration provides students an opportunity to specialize in one of the fields studied in the Core or to develop their own course of advanced study.

Departmental Courses and Requirements

All students must complete the requirements of a Managerial Concentration. There are only two ways in which this can be done. The first way is by completing one of the eleven structured concentrations. These include Accounting, Health Services Administration, Human Resources Management, Management Information Systems, Management Science, Marketing, Operations Management, Private Financial Management, Public Financial Management, Public Management, and Public Policy Analysis. The second method is by taking a set of three to five courses in an individually designed area of concentration. The content of this concentration is developed by the student and agreed upon by his academic advisor.

All students must take a minimum of two concentration courses from the Management Program or successfully complete a challenge examination in two concentration courses to satisfy the degree requirements for the concentration. With respect to any other courses required for the concentrations, students may transfer credit for courses taken at other institutions provided that: 1) where the student is seeking to satisfy a requirement for a specific course, the course taken at another institution must be comparable to the required concentration course; 2) where the student is seeking to satisfy a requirement involving an elective course, the course taken at another institution must be appropriate to the student's chosen concentration.

The Concentrations and their course requirements are:

Accounting: The Concentration in Accounting will prepare students to work with accounts in private business. The central point of view is the use of accounting information for decision-making within a firm. The course can serve as a step toward becoming a Certified Public Accountant, but students will need to take additional courses beyond those currently available at the University of Massachusetts at Boston before sitting for the C.P.A. examinations.

Students electing the Concentration in Accounting are required successfully to complete the following courses:

MGT 442 Managerial and Cost Accounting
MGT 445 Issues in Financial Accounting
MGT 446 Financial and Operational Auditing.
MGT 447 Business Tax Planning and Management

Health Services Administration: The Concentration in Health Services Administration is designed to prepare students for operations level and staff planning careers in the health field. Upon completion of this concentration, students would typically embark on careers within hospitals, nursing homes, state and federal health agencies and other health institutions. The Health Services Administration Concentration offers students the unusual opportunity to study the field of health within the context of a management curriculum.

Students electing the Concentration in Health Services Administration will be required to complete the following courses:

MGT 470 Organization of the Health System
MGT 471 Legal Issues in Health
MGT 472 Health Systems Planning and Administration

An additional required course will be added in the Fall of 1978, for a total of four required courses in the Health Services Administration Concentration.

Human Resources Management: The Concentration in Human Resources Management is designed to prepare students for careers in such areas as manpower planning, recruitment, selection, and training; wage and salary administration; performance evaluation; equal employment opportunity; and the general area of industrial and labor relations.

Students electing the Human Resources Concentration are required to take the following courses:

MGT 450 Behavioral Techniques in Human Resources Management
MGT 451 Organizational Development
MGT 452 Public and Private Sector Personnel Systems
MGT 453 Public and Private Sector Labor Relations Systems

Management Information Systems: The Management Information Systems Concentration is designed to prepare students for careers in systems analysis and data processing functions of private and public organizations. The courses in this concentration are aimed at providing students with a background in computers and computer systems; the data processing function of an organization; and the use of systems analysis concepts along with management science and computer models to solve managerial problems in a variety of functional areas.

Students electing the **Management Information Systems** Concentration are required to take the following courses:

MGT 421 System Simulation
MGT 422 Systems Analysis for Managerial Decisions
MGT 425 Introduction to Management Information Systems

Management Science: The Management Science Concentration is designed for students who wish to pursue careers in functional areas of organizations, private or public, which use management science approaches to problem solving, or careers in quantitative methods departments of large organizations. The courses in this concentration are concerned with the application of management science approaches to managerial problems encountered in business, hospitals, justice, city operations, and any other type of manufacturing or service organization.

Students electing the Concentration in Management Science are required to take the following courses:

MGT 420 Management Science Models
MGT 421 System Simulation
and two of the following:
MGT 422 Systems Analysis for Managerial Decisions
MGT 423 Forecasting
MGT 424 Operations Planning and Control
MGT 426 Logistics and Transportation
MGT 428 Nonbusiness Applications of Management Science

Marketing: The Concentration in Marketing is designed for students who wish to pursue careers in sales and marketing management. While most of these opportunities are found in profit-oriented organizations in the private sector, interesting career possibilities also exist for those with marketing skills in non-profit and public sector organizations.

Students electing the Concentration in Marketing are required to take the following courses:

MGT 430 Sales and Sales Management
MGT 431 Consumer Behavior and Marketing Communications
MGT 432 Marketing Research
MGT 433 Marketing Management

Departmental Courses and Requirements

Operations Management: The Operations Management Concentration is designed to prepare students for a variety of operations related positions in the manufacturing and service industries. Career opportunities in manufacturing organizations are in such areas as production scheduling, inventory control, production supervision, production design, and quality control. Graduating students should be able to assume positions in private and public organizations involved with service design, control, and supervision.

Students electing the Operations Management Concentration are required to take the following courses:

MGT 420 Management Science Models
MGT 424 Operations Planning and Control
MGT 427 Quality Planning and Control
and one of the following:
MGT 421 System Simulation
MGT 423 Forecasting
MGT 426 Logistics and Transportation
MGT 428 Nonbusiness Applications of Management Science
MGT 422 Systems Analysis for Managerial Decisions

Private Financial Management: The Concentration in Private Financial Management provides continued study of the knowledge and skills that are needed for informed decision-making by persons who manage the finances of private business or by those who direct funds into firms through extending loans or making equity investments.

Students electing the Private F nancial Management Concentration are required to take the following courses:

MGT 443 Business Finance
MGT 444 The Theory of Finance
MGT 449 Financial Institutions and Markets
and one of the following:
MGT 442 Managerial and Cost Accounting
MGT 445 Issues in Financial Accounting

Public Financial Management: The Concentration in Public Financial Management s designed for students who wish to pursue careers in the management of finances in the public sector. Positions in the budgeting, finance, and taxation departments of federal, state, and local government are the typical entry-level jobs in this area. In addition, consulting firms, granting agencies, and private non-profit organizations need people with expertise in public financial management. Students electing this concentration will develop the knowledge and skills needed to deal with all aspects of financial management in public and non-profit organizations.

Students electing the Concentration in Public Financial Management will be required to take the following courses:

MGT 434 Public Management Processes
MGT 440 Public Budgeting Systems
MGT 441 Financial Management in Government Entities

Public Management: The Concentration in Public Management is designed for students who wish to pursue careers in the public sector but are unsure which specific area to choose. Students electing this concentration, therefore, will take a general set of courses that will orient them to a wide range of career possibilities in the public sector, including those in personnel, labor relations, budgeting, finance, and program development. A variety of entry-level management positions exist. Among them are those of legislative staff, executive assistant, departmental staff, and assistant town manager.

Students electing the Public Management Concentration are required to take the following courses:

MGT 434 Public Management Processes
and either
MGT 440 Public Budgeting Systems OR
MGT 441 Financial Management of Government Entities OR
MGT 442 Managerial Accounting
and either
MGT 452 Public and Private Sector Personnel Systems
MGT 453 Public and Private Sector Labor Relations Systems
and either
MGT 435 Program Planning and Evaluation
OR
MGT 436 Policy Analysis: Physical Delivery Systems
OR
MGT 437 Policy Analysis: Social Delivery Systems

Public Policy Analysis: The Concentration in Public Policy Analysis is designed for students who wish to pursue the career of policy analyst in the public sector. Positions in operating departments of government where the focus is on the planning, execution, and evaluation of public programs are the typical entry-level jobs in this area. Volunteer, non-profit, and private self-help organizations also need people with an expertise in policy analysis. Students electing this option will develop the knowledge and skills needed by a wide range of organizations in the public and private sector whose major emphasis is on the delivery of programs in housing, transportation, utilities, education, health, welfare, criminal justice, and other areas.

Students electing the Public Policy Analysis Concentration are required to take the following courses:

MGT 434 Public Management Processes
MGT 435 Program Planning and Evaluation
and either
MGT 436 Policy Analysis: Physical Delivery Systems OR
MGT 437 Policy Analysis: Social Delivery Systems
and either
MGT 442 Managerial Accounting OR
MGT 446 Accounting Systems and Control

In addition to the eleven structured Concentrations just described, students may also take a set of three to five courses in an area of concentration individually designed by the student in consultation and agreement with his or her academic advisor.

THE INTERNSHIP

The Internship is an approved full or part-time work experience for a student in a business, government agency, educational institution, hospital, or other public or private institution. Typically, an internship will involve about twelve hours of work per week for an academic semester, and will provide the student four academic credits, but internship placements for longer hours and more credit can also be arranged. Each internship is decided individually, depending upon a student's interest, talents and experiences, and upon the practical limitations of the placement pool. Through an internship, students gain opportunities to enhance and apply the knowledge acquired in the classroom, to test skills and abilities, to gain new perspectives on career goals and academic directions, and to further their personal and professional development. The Internship, in sum, is a chance for students to appraise and improve their knowledge, skills, and attitudes in the world in which they will be living and working.

Departmental Courses and Requirements

Representatives of employing organizations act as field supervisors who assign, advise, and evaluate the student's work activities. The student receives academic and career guidance on the internship from a faculty sponsor who also assigns, supervises, and evalutes academic study to complement the individual work experience. The College's Office of Field Relations provides overall coordination for the internship experience and facilitates the efforts of participating employers, faculty, and students.

The Internship is a requirement for the Bachelor's Degree in Management. Students who have already had work experience comparable to those associated with the Internship may petition to substitute that work experience by preparing a portfolio for the Internship.

Additional information about the Internship is contained in the booklet *The Internship Experience*, which is available in the College Office.

GENERAL EDUCATION COMPONENT FOR MANAGEMENT STUDENTS

Approximately half of each student's four year program involves a university-level general education in the liberal arts and sciences. This portion of the program is designed to help students develop essential intellectual skills and to achieve a basic understanding of some of the major fields of knowledge. The General Education Component includes a required freshman course in the Liberal Arts and the World of Work. This component also includes five general requirements concerned with different aspects of a student's intellectual development. The five general requirements can be satisfied by many different patterns of study, thus providing each student with considerable opportunity to elect courses he or she wishes to take. In some cases, a single course may satisfy more than one of the requirements. Except where specified, general education course work may be taken at any point during the student's program. Students are encouraged to mix course work in the applied and General Education Components during the course of their education.

The following table lists each of the General Education requirements along with the number of credit hours of required work associated with each:

Liberal Arts and the World of Work	4*
Essential Skills	8
Fields of Study	21-28
Special Field of Study	12-16
Problems of Inquiry	9-12
Personal Education	unspecified

*One credit hour is generally associated with one hour of classroom work per week for a semester.

The five General Education requirements for Management students are described in the following paragraphs.

Liberal Arts and the World of Work

This freshman course is intended to: 1) introduce students to the kind of intellectual activity in which the liberal arts engage; 2) familiarize students with the range of liberal arts disciplines in order to assist students in making liberal arts course choices to fulfill the Fields of Study requirement; 3) present students with a set of concepts necessary to their future intellectual endeavors in the Management Program, the liberal arts, and in their chosen profession and 4) integrate the intellectual concerns of this course with the more professional concerns of Introduction to Management and the more analytic concerns of MGT102, Expression of Critical Thought.

Essential Skills Requirement

Each student must achieve a basic mastery in the areas of writing and quantitative analysis, and must demonstrate this mastery at a level of proficiency which can be expected of one who holds a baccalaureate degree from the University of Massachusetts.

Fields of Study Requirement

This requirement is intended to help students understand some of the basic concepts and methods that have been developed by scholars to investigate and understand persons, their institutions, their culture, and their physical world. To satisfy this requirement each student must successfully complete at least one course in each of seven fields of study. Students entering the program as freshmen will take a basic course called the Liberal Arts and the World of Work, which is designed to introduce them to several fields in the liberal arts.

The seven fields of study are described in the following paragraphs. None of these fields of study correspond to any single academic discipline. Rather, each represents a specific topic for intellectual examination which may be approached from the perspective of several disciplines. In satisfying the Fields of Study Requirement, students may choose to limit their work within each field to a single discipline or approach some or all the fields on an interdisciplinary basis. Students will work out with their academic advisors the specific courses they will take to satisfy these requirements.

The **Individual Human Life Field** is concerned with the intensive examination of the experience of living from the perspective of an individual. Course work appropriate to this field can be found most readily in the disciplines of psychology and literature, particularly courses in the novel. Courses from other fields concerned with the study of individuals (such as History, Classics, Theatre Arts, or Philosophy) would also be applicable, depending upon the specific emphasis of the course.

The **Social Organization Field** focuses on human behavior in organized groups. Appropriate courses concerned with theories and methods of analyzing group behavior may be found in Sociology, Social Psychology, Anthropology, or Economics. Another group of appropriate courses are those which analyze specific kinds of human institutions or organizations, such as selected courses in Government and Politics, Sociology, Economic Institutions, and Cultural Anthropology.

The **History Field** will help students develop an understanding of the history of the civilization of which they are a part, as well as provide them an awareness of the pervasiveness of historical change in human life. Appropriate course work can come from any field (including History, Art, Literature, and Afro-American Studies) which is concerned with the historical development of some aspect of American Civilization or of the American legacy from other cultures.

The **Comparative Cultures Field** focuses the student's attention on civilizations that are fundamentally different from the one into which the student has been born or socialized. Appropriate course work can come from any discipline (such as Literature, Art, Music, Philosophy, Architecture, History, Anthropology, Sociology, or Economics) which focuses upon the culture, history, or social organization of another country or people.

The **Morals and Values Field** is concerned with understanding systems of values and beliefs that have been developed by individual thinkers. Appropriate course work can come from the fields of Philosophy, Religion, Classics, Literature, History, and Psychology.

The **Aesthetics Field** focuses on efforts to understand and create works of imagination that are of unusual beauty, harmony, or artistic merit. Appropriate course work can come from

the fields of Art, Music, Literature (English or foreign), Classics, or Theatre Arts.

The **Physical World Field** focuses upon the natural environment which provides the basic context of human life. Course work in Biology, Chemistry, Physics, Astronomy, and Mathematics could be appropriate here.

Special Field of Study

This requirement asks students to achieve a substantial degree of understanding of the methods, theories, and content appropriate to at least one of the several Fields of Study by completing a minimum of five courses in that field. At least three out of the five courses taken to satisfy this requirement must be at or above the 200 level. Also, at least three out of the five must be from a single academic discipline.

Problems of Inquiry

The Problems of Inquiry requirement is under revision. Students who entered the program prior to the Fall of 1978 must complete coursework focused on the most fundamental of all intellectual questions: how do we describe the world around us accurately; and how do we assign value to what we see and experience. Each student must successfully complete at least three courses concerned with different aspects of this problem.

The first two courses that a student must take to satisfy the Problems of Inquiry Requirement must place a major emphasis upon the development of understanding how to formulate ideas and explanations through the scientific method. One of these courses must employ the rigorous application of the scientific method to quantitatively measurable empirical phenomena in which causal relationships can be determined with relative certainty. (Appropriate courses can be found in the disciplines of Biology, Chemistry, Physics, and to some extent also in Psychology, Sociology, Economics, and History.) The second course must emphasize the application of the scientific method to problems where measurement is difficult or impossible and where clear causal relationships are extremely difficult to establish. (The most appropriate course work for this part of the requirement can be found in the social sciences, including Economics, Sociology, Anthropology, Psychology, and History.)

The final part of the Problems of Inquiry Requirement asks students to successfully complete at least one course which emphasizes the problem of making value judgments in a moral sense. (Appropriate course work can be found most readily in the field of Philosophy; courses may also be found in the fields of History, Literature, Classics, or Religion.)

Students who enter the Program during or after Fall, 1978 may be asked to complete the revised Problems of Inquiry requirements. These requirements will consist of a single course and a series of competencies through which the student will demonstrate the skills of inquiry. Further information about the revised requirement will become available through the CPS orientation and advising system.

Personal Education

Each student must demonstrate a capacity to design and execute a personal program of study, and the student's academic advisor is responsible for working with the student to satisfy this requirement.

Electives

Each student will have a limited number of electives to use as he or she desires. There is no restriction on the nature of these electives.

ENGINEERING PROGRAM

In the Fall of 1978 the College of Professional Studies, in cooperation with the College of Arts and Sciences at UMass/Boston and the School of Engineering at UMass/Amherst, will offer a new Program in Engineering. The Program will lead to a BS degree in one of the following majors: Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Operations Research or Mechanical Engineering.

For many students the Program will involve two years of coursework on the Boston Campus followed by two years at Amherst. Variations from this pattern will also be common, however, and these can occur in two ways. First, the period of work at Boston can range from as little as one year to as many as three years depending on a student's major and individual interests. Second, it is not unusual — even for students who begin as freshman at Amherst — for the complete program to take more than eight academic semesters; this results from the fact that the Engineering Degree can require as many as 130 credits, which is well above the number of credits required in most of the University's four-year programs.

Students in the Program will receive academic counseling and guidance to insure that their courses are appropriately suited to their needs.

While at the Boston Campus, students enrolled in the Engineering Program will follow a pattern of coursework that closely parallels the curriculum followed by students who began their work at the School of Engineering at UMass/Amherst. This coursework includes:

Engineering Courses Total: 3
- a required first semester, freshman year in Introduction to Engineering (Engineering 103) which provides a general overview of the field.
- Two semesters in the student's chosen major, taken during the sophomore year

Math Courses Total: 5
- a two-semester freshman year calculus course (MATH 140-141)
- two sophomore year courses, including a third calculus course and an additional course that varies depending on major
- a required second semester freshman year course in FORTRAN Programming

Physics Courses Total: 2-3
- a two-semester, calculus-based course in Physics (PHYSICS 113 and 114)
- an additional semester of Physics for majors in Computer Engineering and Electrical Engineering

Chemistry Courses Total: 1
- one semester of basic chemistry (CHEM 103)
- one additional semester of chemistry for majors in Chemical Engineering.

Other Requirements

In addition to the specific requirements listed above in Engineering, Math, Chemistry and Physics, students will take additional coursework in Essential Skills, Humanities, Social Science and Physical Sciences in order to meet General Education and Engineering distribution requirements.

Engineering Courses Offered at Amherst

Students in the Program will need to meet the requirements of the major in Engineering through a series of specialized courses offered at the School of Engineering on the Amherst Campus. These include courses such as those summarized below.

Departmental Courses and Requirements

Chemical Engineering
- Organic and Physical Chemistry
- Thermodynamics
- Fluid Mechanics
- Heat and Mass Transfer
- Process Control
- Chemical Engineering Analysis and Design

Civil Engineering
- Surveying
- Transportation and Transportation Systems
- Applied Mechanics - Statics, Dynamics, Strengths of Materials, Fluid Mechanics
- Structures — Analysis and Design, Concrete, Steel
- Soil Mechanics
- Environmental Engineering

Electrical Engineering
- Circuit Theory
- Systems Analysis
- Field Analysis
- Network Theory
- Electronic Materials and Devices
- Computer Architecture
- Communications

Industrial Engineering and Operations Research
- Engineering Probability and Statistics
- Engineering Economics
- Methods and Standards
- Man-Machine Systems
- Production Control
- Simulation
- Operations Research
- Quality Control

Mechanical Engineering
- Applied Mechanics — Statics, Dynamics, Strengths of Materials, Fluid Mechanics, Thermodynamics, Kinematics, Machine Design, Systems Analysis, Heat Transfer, Vibrations, Materials and Manufacturing

All programs are supported by extensive laboratory practice as well as by strong interaction with the University Computer.

Continuing Curriculum Planning

The preceding paragraphs describe in very specific terms most of the coursework that will be taken by students in the new Engineering Program. Since this is a new program, however, there are some areas where additional planning of the curriculum will be done. The College is currently developing plans for how students will meet General Education and Essential Skills requirements, and additional information concerning these requirements will be made available as soon as possible.

CREDIT BY EXAMINATION

The courses offered in the Management Program are a means by which students can acquire information and skills they will need in beginning managerial careers. No useful purpose is served by requiring students to take courses covering materials that they have already mastered through practical experience, independent study, or some other means. It is, therefore, the policy of the College to permit any student to request to be examined regarding the materials covered in any course offered by the Management faculty. If a student can successfully pass the examination, credit for the course will be awarded and entered on the student's transcript. These examinations are usually scheduled during or prior to the first week of each semester.

NORTHEASTERN UNIVERSITY EXCHANGE PROGRAM

The College has a cross-registration program with the College of Business Administration at Northeastern University. Through this program, students in the Management Program can register for a limited number of courses at Northeastern University, at no additional cost to the student. Students wishing to take courses in the evening can cross-register with the University College Business Program at Northeastern. The program represents the first step in the University's effort to expand the educational opportunities of students on the Boston campus through joint programs with private educational institutions.

CAREER PLANNING AND PLACEMENT

One of the major goals of the Management Program is to help students plan and begin careers. We cannot guarantee anyone a job upon completion of the program, but the faculty and staff will do all they can through classroom work, field experience, and personal counseling to help students understand the career options available to them in management and to design an educational program that will prepare them for the field of their choice. Intensive career orientation seminars and placement assistance will be available to seniors as they approach graduation, and students will also have access to the University's Office of Vocational Counseling and Career Placement.

FUTURE DEVELOPMENT OF THE COLLEGE

The plan for the College of Professional Studies identifies five fields in which academic programs may be developed: Management, Health, Urban Technology, Mass Communications, and Architecture and Urban Design. The Management Program is intended both to be a complete program in itself and also to be a foundation for the development of other professional programs. The new Concentration in Health Services Administration is an example of the ways in which new programs will be developed on the basis of the Management Program. The College is currently considering the establishment of concentrations in the fields of Communications Management and Technology Management as a way of initiating program activity in the field of Mass Communications and Urban Technology.

COLLEGE OF PROFESSIONAL STUDIES POLICIES ON CREDIT EVALUATION

The paragraphs below describe the policies which will be used to evaluate for credit students' learning experiences which have been taken outside the College of Professional Studies-Management Program. While these policies will govern the initial credit evaluation done for students entering the Program, the College views the credit evaluation process as an on-going one. As the faculty generates additional options for evaluation, students may request that their prior learning experiences be evaluated for credit using these new options.

Except where a student earns credit by taking the examination prepared to test specific knowledge of management program courses, the receiving of credits should be regarded as a separate issue from the determination of how these prior learning experiences will be used to fulfill specific degree requirements of the Management Program. These determinations will be made in the following ways:

General Education Component

The decision as to whether the prior learning experiences, for which the student has received credit, will be used to fulfill specific requirements in the General Education Component of the Program, is made by the student and his/her academic advisor. The student may be asked to provide course descriptions and/or other materials to facilitate these determinations.

Applied Component:

In order for prior coursework to be used to fulfill specific requirements in the Applied Component of the Program, the content must be comparable to the specific required course. Comparability will be determined based on information provided by the student regarding topics covered, texts used, other course requirements, and duration. These determinations will be made by the Coordinator of Student Support Services in conjunction with faculty in relevant disciplines. In cases where prior courses are determined not to be comparable to Management Program courses, the student may request or be required by his/her academic advisor or by the Coordinator of Student Support Services to take an examination prepared by the faculty member offering the Management Program course. Credit for the Management Program course will be given if the student receives a passing grade on the exam.

CREDIT POLICY

The College will grant credit for prior course work satisfactorily completed by students enrolled in a duly accredited, two or four year post-secondary institution. According to University Policy, a grade of "C" or better must be earned in order for the credit to be transferable. In cases where the course work was completed on other than a semester hour basis, credit for such work will be numerically converted to a semester-hour basis.

As indicated above (see section on Credit by Examination) the College will grant credit for examinations offered by the College Level Examination Program, or CLEP. The score one must achieve to receive credit and the amount of credit to be received will be determined by the Coordinator of Student Support Services in consultation with the appropriate Program Director and with faculty in relevant disciplines.

The College will also grant credit to a student who, through practical experience, independent study, or some other means has mastered the material in a course in the Applied Component of the Management Program, and can demonstrate this by passing an examination prepared by the faculty member offering the course. In such a case, credit for the specific Management Program course will be recorded on the student's record. See the section entitled "Credit-by-Examination" in the general description of the College elsewhere in this catalogue.

The College will continue to study the issues surrounding the granting of academic credit for learning which has taken place off-campus, and will move to broaden its policies in this area. As these new options for credit are generated, students should request that their prior learning experiences be evaluated for credit using these new options.

APPEALS PROCEDURE

The present policy of the College of Professional Studies provides that a student may, in a specific instance, appeal the application of a standard, policy or requirement directly to the Dean of the College. A more detailed grievance procedure is in formation by a team of faculty and staff.

MGT 100 Introduction to Management
A first course in the functions and problems of management, designed to introduce students to the concrete world of management for which much of their subsequent coursework is designed to prepare them.
3-4 Lect Hrs 3-4 Credits

MGT 101 The Liberal Arts and the World of Work
This course is designed to inform students in broad terms about the world of work they plan to enter, the social functions of work, the organizational settings in which work takes place, the different forms of work, and the values attached to work. The course will also introduce students to the conceptual and disciplinary tools they will encounter at later stages in the Management Program. This course will be taught by a team of faculty from several fields in the social sciences and the humanities.
3 Lect Hrs 4 Credits

102 Expression of Critical Thought
Expression of Critical Thought cultivates skills of reasoning and communicating that have been found basic and essential to human problem solving and reasoning at all levels. The course will assist students to deal with the courses taken in the Management Program. It is required of all freshmen in the first semester.
4 Lect Hrs 4 Credits

111 Communications Seminar
An intensive one term study of writing particularly designed for upper division students whose writing ability must develop to meet the demands of coursework and a career. Contents of the course include major statements, composition structure, the use of information, and relations with an audience.
3 Lect Hrs 1-3 Credits

MGT 160 Problems of Inquiry
This course explores how we come to know the natural, social and moral worlds. Specifically, the course focuses on the complex interplay of facts and values in our effort to explain and evaluate. The course examines how natural and social scientists arrive at judgments of fact and how moral philosophers arrive at value judgments.
3 Lect Hrs 3 Credits

220 Managerial Statistics
This is a non-calculus introduction to statistical description and inference. The purpose of the course is to give the students sufficient knowledge so that they will be able to intelligently evaluate statistical reports and to properly gather, tabulate, and analyze research data. Topics covered include tabulation and statistical measurement of sample data, probability (including common distribution) parametric and nonparametric hypothesis testing (two sample, contingency tables, goodness of fit, and analysis of variance), estimation, regression, correlations, survey and sampling techniques, and experimental design.
4 Lect Hrs 4 Credits

260 Introduction to Law and Management
This course explores the nature and functions of law and legal systems. It examines the use of law in resolving disputes, facilitating arrangements and as an administrative regulatory instrument. Particular attention is devoted to the interface between law and management theory.
3 Lect Hrs 3 Credits

262 Massachusetts State Government and its Management
A study of the structure and functions of Massachusetts State Government and the organizational problems which are involved in its operation. The roles of the legislature and of the executive in planning, organizational development, staffing and directing, and control will be discussed. The budget process, personnel and civil services will be explained in some detail. The applicability of simple managerial principles to the state government will be discussed from the standpoint of the citizen, who is both its owner and its ultimate consumer.
3 Lect Hrs 3 Credits

320 Introduction to Operations Research
This course provides an overview of important concepts and techniques used for deriving optimum solutions to managerial problems. The course begins with definitions of system, manager, and optimum decisions. States of nature, alternative course of action, objective function, payoff matrix, and opportunity loss are explored, three types of decision-making situations, certainty, uncertainty and risks, are examined and decision-making criteria are derived. The remainder of the course explores several of the widely used operations research techniques, such as flow charts, task diagrams, pert networks, Monte Carlo Technique, assignment, resource allocation, transportation (distribution), and general linear programming.
Prerequisite: Mgt 220 or equivalent.
3 Lect Hrs 3 Credits

321 Operations Management
This is an introduction to the principle problems and issues that confront the manager of the interactions among physical resources which result in the production of a good or delivery of a service. The course also explores methodologies of analysis and decision-making as applied to these problems and issues. Appropriate quantitative techniques such as cash flow convergence, mathematical programming, regression analysis, decision analysis, queuing models, and simulation are covered. The remainder of the course studies the fundamental elements of production and services delivery management. Included are such topics as facilities management, work measurement, process design, forecasting, scheduling and dispatching, production and inventory control, quantity control, effects of technological change, and economics of transportation and logistics.
Prerequisite: Mgt 320.
3 Lect Hrs 3 Credits

331 Marketing in the Public and Private Sector I
Managers, whether in business, government or other types of organizations, should be capable of participating in the process through which an organization attempts to achieve its objectives by acting on and reacting to its environment. In this course, students will learn to analyze the structure and behavior of: 1) social, economic, technological, political, legal and other systems within which an organization operates; 2) individuals and groups within those systems towards which an organization's products or services are directed and from which its resources are obtained. Students will then learn to formulate and evaluate programs designed to achieve an organization's objectives by influencing and adapting to its external environment. The courses will make use of lectures, class discussion, exercises, report writing, and case studies.
3 Lect Hrs 3 Credits

335 The Organization and its Environment
No organization exists in a vacuum. The survival, let alone success, of an organization is dependent upon its ability to operate effectively in its environment. This course focuses on learning how to describe and analyze the interactions between an organization and its environment and to understand how these interactions affect the structure and behavior of the organization.
3 Lect Hrs 3 Credits

340 Management of Financial Resources I
The greater part of this course is an introduction to financial accounting, emphasizing concepts rather than bookkeeping procedures. The course also includes brief treatment of the management of the short-term financial needs of profit and non-profit entities.
4 Lect Hrs 4 Credits

341 Management of Financial Resources II
Continuation of the study of short-term financial management. Basic aspects of long-term finance including leverage, debt capacity and dividend policy. Introduction to the types of securities issued by public and private entities. Capital budgeting and the time value of money.
Prerequisite: Mgt. 340 or permission of instructor.
4 Lect Hrs 4 Credits

350 Management of Human Resources I
An introductory course centered around the processes of planning, organizing, directing and controlling activities as they relate to the effective utilization and development of people in formal organizations. Students will be exposed to the analytical tools useful in conceptualizing, diagnosing and acting on managerial problems related to the interaction between organizations, their objectives and the development of human resources; emphasis will be given to the concepts of organization analysis and design, and to the analysis of the effects of organizational structure on human performance.
3 Lect Hrs 3 Credits

351 Management of Human Resources II
This core course will expose students to the theories, ideas and research concerning human behavior in organizations. It has been structured as an experiential learning process around the analysis of individual behavior, interpersonal relations and group dynamics. Students will be exposed to the critical interactions and options open to management in structuring human performance and the value implications implicit in personnel decisions.
Prerequisite: Mgt 350 or permission of instructor.
3 Lect Hrs 3 Credits

420 Management Science Models
The objective is to familiarize the student with management science models used in the analysis and solution of managerial problems. Emphasis is given to understanding the usefulness of the models for decision-making as well as their powers and weaknesses as they are used to solve problems of different functional areas of business and nonbusiness organizations. Included are such topics as linear programming, dynamic programming, introduction to integer and goal programming, network analysis, queuing models and introduction to Markov processes.
Prerequisites: Mgt 320 and 321; Mgt 321 can be taken concurrently.
3 Lect Hrs 3 Credits

421 System Simulation
The purpose of the course is 1) to familiarize the student with the concept of simulation, and the approaches and computer languages used; and 2) to indicate the important role which simulation models are capable of playing in the management of complex systems. Topics to be covered include continuous and discrete system

simulation approaches, computer simulation languages like CPSS and SIMSCRIPT, and application of simulation in differnt functional areas.
Prerequisites: A computer programming course, Mgt 320, 321, 341, 331. Mgt 321, 341, and 331 may be taken concurrently.
3 Lect Hrs 3 Credits

422 Systems Analysis for Managerial Decisions
The student will become familiar with the concepts of systems analysis and their use, along with the use of quantitative models and the computer to solve managerial problems in a variety of functional areas. Included are such topics as introduction to systems and models, stages of a systems analysis approach, overview of systems applications by functional areas, and computer techniques for systems implementation in finance, operations, and marketing.
Prerequisites: Mgt 320 and 321.
3 Lect Hrs 3 Credits

423 Forecasting
The purpose of the course is to familiarize the student with different approaches used in forecasting, the problems involved in their application, and the pitfalls associated with them. Topics to be covered include use of correlation and regression analysis, univariate and multivariate true series analysis, decomposition methods, exponential smoothing, Box-Jenkins methodology, adaptive filtering and data management.
Prerequisites: Mgt 220.
3 Lect Hrs 3 Credits

424 Operations Planning and Control
The objective is to familiarize students with the application of quantitative techniques to the functional area of an organization which deals with problems arising from the need to design, plan, and control a system that transforms inputs into outputs. Included are such topics as inventory control, aggregate planning, a scheduling and sequencing, assembly line balancing, project scheduling, and facilities replacement and maintenance.
Prerequisite: Mgt 420.
3 Lect Hrs 3 Credits

425 Introduction to Management Information Systems
The course introduces the student to management information systems with particular emphasis on date processing. Topics to be discussed will be related to organizationl conditions determining the role of the date processing function, common structural alternatives, major hardware and software including their purposes and limitations, principal work elements, and the impact of engineering to technologies on corporate operations. The special management challenges presented by the date processing function will be discussed both from the view point of corporate management and of data processing management.
3 Lect Hrs 3 Credits

426 Logistics and Transportation
The purpose of the course is to familiarize the student with the logistics activities of an organization from systems approach viewpoint that integrates the activities of transportation, inventory control, materials handling, warehousing, order processing, protective packaging, scheduling and customer service. Topics to be covered include a discussion of the logistics environment, location of facilities, inventory policy, transport and scheduling, storage and materials handling, and logistics management and control.
Prerequisites: Mgt 420.
3 Lect Hrs 3 Credits

427 Quality Planning and Control
Familiarize the students with the approaches involved in planning the quality function of a system so that products and services will be fit for use, and in analyzing quality problems in order to discover causes and propose remedies. Among the topics to be covered are the quality control functions and its economics, acceptance sampling, statistical aids, control of a process at the different stages of the product, relations with vendors and customers, quality data systems, and diagnosis techniques for quality improvement.
Prerequisites: Mgt 320 and Mgt 321; Mgt 321 can be taken concurrently.
3 Lect Hrs 3 Credits

428 Management Science Applications in the Public Sector
The purpose of the course is to familiarize the students with management science applications to the solution of problems related to nonbusiness systems such as health care, city operations, law enforcement, education, and environment. Emphasis will be given to the variety of nonbusiness problems that can be solved by management science approaches and the potential uses of such approaches in the public sector.

Prerequisite: Mgt 420.
3 Lect Hrs 3 Credits

430 Sales and Sales Management
The basic objective is to develop the student's understanding and skills in managing the personal selling function. The course should be of special interest to those students who seek out companies that place special emphasis on personal selling as an element of the marketing mix. It is also important to general managers since the course is oriented to the firm's marketing strategy and towards implementation.
Prerequisite: Mgt 331 or permission of instructor.
3 Lect Hrs 3 Credits

431 Consumer Behavior and Marketing Communications
Analyzes interactions between consumer decision-making processes using concepts of economics, sociology, psychology, and mass and informal communications, in order to develop marketing communication strategies in response to specific marketing problems.
Prerequisite: Mgt 331 or permission of instructor.
3 Lect Hrs 3 Credits

432 Marketing Research
Presents marketing research as the systematic and objective search for and analysis of information relevant to the identification and solution of marketing problems as well as for use in management information systems.
Prerequisite: Mgt. 331 or permission of instructor.
3 Lect Hrs 3 Credits

433 Marketing Management
The objective is to develop the student to the point of being able to formulate a marketing program. The elements of the marketing program must be combined in a logical integrated manner conforming to marketing forces that bear on the firm and must be consistent with the needs of the program's target market segment.
Prerequisite: Mgt 331 or permission of instructor.
3 Lect Hrs 3 Credits

434 Public Management Processes
This course examines the role of public administrators in the design and implementation of public policy. It deals with the technical, political, and social issues involved in managing federal, state and local units of government, considering public administration as a profession as well as an academic subject, the course covers the need for and historical development of public administration, the problems of managerial decision-making, ethics in government, crucial aspects of the public budgeting and personnel processes, and the future of public administration.
Prerequisite: Mgt 350 or permission of instructor.
3 Lect Hrs 3 Credits

435 Program Planning and Evaluation
This course deals with how managers plan programmatic objectives and evaluate the attainment of the objectives. It discusses not only the techniques of planning and evaluation but also the political and organizational environments in which these techniques are executed. Topics covered include the determination of performance criteria and standards. Choice of research design and instruments, presentation of evaluation data and reports, and the utilization of evaluation results to improve organizational efficiency and effectiveness.
Prerequisite: Mgt 335 or 350 or permission of instructor.
3 Lect Hrs 3 Credits

436 Policy Analysis: Physical Delivery Systems
This course builds on the concepts and techniques presented in Mgt 435 and brings them to bear on the analysis of physical systems. The course will be case-oriented and will be primarily concerned with the planning, land-use, and environmental issues associated with public policies and programs in areas such as transportation and housing.
Prerequisite: Mgt 434 and Mgt 435 or permission of instructor.
3 Lect Hrs 3 Credits

437 Policy Analysis: Social Delivery Systems
This course builds on the concepts and techniques presented in Mgt 435 but in a direction different than Mgt 436. The course will present evaluation design and management at a level beyond Mgt 435, with a special emphasis on the analysis of social programs. The course will discuss the environment in which social programs are planned, evaluated, and revised and the specific analytical needs of public managers in these various processes.
Prerequisite: Mgt 434 and Mgt 435 or permission of instructor.
3 Lect Hrs 3 Credits

340 Public Budgeting Systems
This course examines public budgeting at the federal, state, and local levels. Its emphasis is on how the public manager uses budgeting in the planning, evaluation, and control of public programs. Topics covered include the budget process, emphasizing the recent federal reforms, the tools of analysis used in public budgeting; the applications of program-based budgeting systems at the federal, state, and local level; and the future directions for public budgeting.
Prerequisite: Mgt 341 or permission of instructor.
3 Lect Hrs 3 Credits

341 Financial Management of Governmental Entities
Whereas a course of public budgeting systems deals with budgeting and financial management from an institutional process, issue-oriented perspective, the course in financial management is primarily a techniques-oriented course for those students who wish to develop in-depth knowledge in the ways public agencies manage all of their resources, such as revenues, expenditures, inventories, and debt. The process of the course will center on class lectures and case studies which will integrate the management techniques and accounting techniques used to solve contemporary public financial problems such as the establishment of a public debt policy and the formulation of current and capital budgets.
Prerequisite: Mgt 341 or permission of instructor.
3 Lect Hrs 3 Credits

342 Managerial Accounting
Study of the costs of operations of all types of entities with particular attention to the allocation of variable and joint costs. Examination of the use of cost data both by managers within entities and by those who negotiate about or regulate costs and pricing.
Prerequisite: Mgt 340 or permission of instructor.
3 Lect Hrs 3 Credits

343 Business Finance
Continues in greater depth the study of the management of financial resources initiated in Mgt 341. Contrasts the information and procedures of analysis available to individuals outside the firm and those within it. Introduction to the financial aspects of mergers and acquisitions. Brief review of the disclosure and accounting standards required by professional and governmental bodies.
Prerequisite: Mgt 341 or permission of instructor.
3 Lect Hrs 3 Credits

444 The Theory of Finance
This course supplements the knowledge obtained in Mgt 340-341, with the analytical techniques required to accomplish the varied assignments a financial manager or analyst might receive. The course assumes a basic understanding of the institutional environment within which financial decisions are made and a grasp of the concepts presented in the 340-341 sequence. From this assumed base, the course will present the theoretical background of various analytical techniques, a discussion of their potential benefits and shortcomings, and examples of their use. Major topics include asset management, capital budgeting, and valuation theory.
Prerequisite: Mgt 341 or permission of instructor.
3 Lect Hrs 3 Credits

445 Issues in Financial Accounting
Building on the abilities gained in the core course, this course extends the study of financial accounting, particularly in the areas of: determination of period income, balance sheet valuation, accounting for equities. The course also explores the issues in the areas of price-level and fair value accounting, alternative methods of financial statement presentation, and accounting changes.
Prerequisite: Mgt 341 or permission of instructor.
4 Lect Hrs 4 Credits

446 Financial and Operational Auditing
The role of auditing, operational and financial, in the management of private and public sector organizations. Goals, scope, standards and methodologies of internal and external auditing as instruments of control, accountability, reporting and performance evaluation by management and outside parties-at-interest requiring reliable data for decision-making.
Prerequisites: Mgt 340 and 445; Mgt 445 may be taken concurrently.
3 Lect Hrs 3 Credits

447 Business Tax Planning and Management
This course covers the impact of federal, state and local taxation on managerial decision-making; planning and organizing the tax function; long and short-term analysis, research and planning; and tax information systems and controls. Coverage also includes income, property, sales and payroll taxes at all levels of government. Prerequisite: Mgt 340 and 445 or permission of instructor; Mgt 445 may be taken concurrently.
3 Lect Hrs 3 Credits

448 Investment Management
This course is designed for those who wish to prepare to work for one of the many types of firms that invest in financial instruments. Topics covered include the characteristics of various types of investors which determine the types of instruments they should buy; the procedures of analyzing and selecting securities to satisfy investors' needs; the markets in which exchange of securities take place.
Prerequisite: Mgt 341, 443, 445 or permission of instructor; Mgt 443 and 445 may be taken concurrently.
3 Lect Hrs 3 Credits

449 Financial Institutions and Markets
An introduction to the financial institutions in the economy of the USA, covering their importance to the working of our system. Among the institutions described are insurance companies, banks of several types, brokerage firms and the security markets. Study of management problems peculiar to these firms, with techniques for the analysis and resolution of these problems by managers.
Prerequisite: Mgt 341.
3 Lect Hrs 3 Credits

450 Behavioral Techniques in Human Resources Management
A seminar directed primarily to the development of basic skills and research techniques common to the fields of personnel and labor relations. It will provide knowledge of and information on those aspects of research methodology required for effective role development in personnel and labor relations. Required for all management majors concentrating in the human resources area.
Prerequisite: Mgt 351 or permission of instructor.
3 Lect Hrs 3 Credits

451 Organizational Development
A seminar centered on diagnostic techniques, change processes, and managerial intervention techniques as applied to a variety of human

groupings within formal organizations. Required for all management majors concentrating in the human resources area.
Prerequisite: Mgt 450 and 452 or permission of instructor.
3 Lect Hrs 3 Credits

452 Public and Private Sector Personnel Systems
This course explores the personnel management process in both the public and private sectors. It examines the role of the personnel manager and the nature of the various forces that shape that role. In addition to the traditional areas of personnel management, such as recruitment, selection, and compensation. Time will be devoted to a review of the special problems associated with public sector personnel management. Prerequisite: Mgt 351 or permission of instructor.
3 Lect Hrs 3 Credits

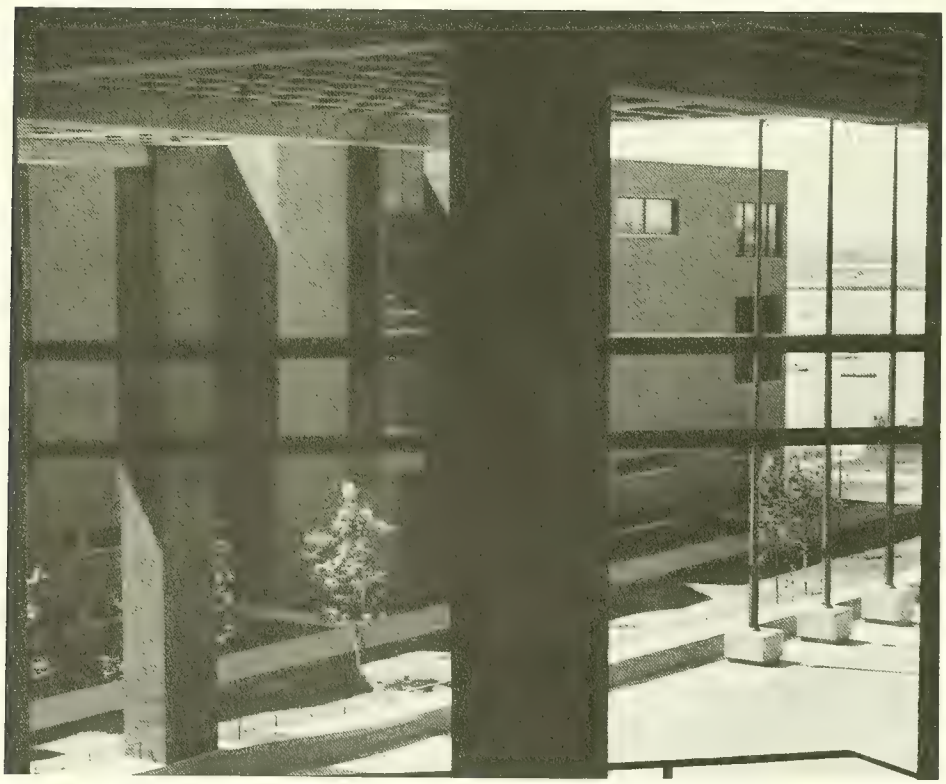
453 Public and Private Sector Labor Relations Systems
Explores the nature, development, and current problems of union-management relations in both the public and private sectors. Attention is given to subjects such as labor market and labor force analysis, the impact of unemployment and technological change, and contract negotiation and administration.
Prerequisite: Mgt 450 and 452 or permission of instructor.
3 Lect Hrs 3 Credits

460 Special Problems of Small Business
The formations and management of small organizations, profit and non-profit, typically with personnel of under 100. The course will emphasize the analytical tools and management concepts which can be effectively used by smaller organizations and will treat problems of personnel organization, financing, and marketing. Material will deal with the problems of finding opportunities, appraising the potential for success, negotiating price and terms for funding or purchase, raising capital, and operating problems at various stages in the life cycle of a small enterprise. Material will consist of case studies, selected readings, and occasional invited guests.
Prerequisite: Mgt 341 or permission of instructor.
3 Lect Hrs 3 Credits

461 Purchasing and Materials Management
A study of the principles and techniques underlying the organization and management of the procurement function. The place of the purchasing function as it relates to other management functions in the modern profit or nonprofit enterprise.
Prerequisite: Permission of instructor.
3 Lect Hrs 3 Credit

470 Organization of the Health System
This is a study of the people and organization which make up the American system and how this sytem has been shaped and is continuall being reshaped to meet the needs of the individual and the community. The course serve as an introduction to the Concentration i Health Services Administration.
3 Lect Hrs 3 Credit

471 Legal Issues in Health
This is a study of the health organization an the law. Its purpose is to describe the lega responsibilities of the governing body, th medical staff, and the administrator. Th course is a requirement for the concentration i Health Services Administration.



erequisite: Mgt 470 or permission of instructor.
Lect Hrs 3 Credits

72 Health Systems Planning and Administration
his is a study of the ways an administrator nctions within a health organization to help it complish its goals. It is also an introduction community health problems and to the manr in which systems are designed to meet these oblems. The course is a requirement for the oncentration in Health Services Administran. Prerequisite: Mgt 350, Mgt 351 and Mgt 70 or permission of instructor.
Lect Hrs 3 Credits

78 Special Topics in Management
tensive study of topics in management. ourse content and credit will vary each semesr and will be announced during the advance gistration period.
ours by Arrangement 1-3 Credits

80 Management Internship
ull or part-time work experience in manageent settings, supervised by an on-site supersor and a management program faculty sponr. Credit also available to students with prior anagerial experience who develop a professonal portfolio about that experience under the pervision of a faculty sponsor. Open only to anagement students who have completed 75 edits, 3 out of the 4 management core courses, d the application process during advance regtration periods. Prerequisite: Permission of PS dean's office, management students only.
rs by Arrangement 4-8 Credits

82 Independent Study
udent-initiated research project on a mangement topic, supervised by a member of the anagement program faculty, open to a limited mber of students each semester.
rs by Arrangement 3-4 Credits

00 Exchange Program with Northeastern University
tudents enrolled in the management program ay, with the approval of the dean of the Colge of Professional Studies, take specialized ourse work not available at the University of lassachusetts at Boston at the College of Busess Administration at Northeastern Univerty. Students interested in this option should ontact the College of Professional Studies dean's office. Priority will be given to management students.

103 Introduction to Engineering
A basic introduction to the various fields of engineering. Course is divided into modules, each concerned with an Engineering field.
3 Lect Hrs 3 Credits

Graduate Studies

The University of Massachusetts at Boston offers limited, high-quality graduate-level programs. At present five programs of study offer Masters degrees: Biology, Chemistry, English, History, and Mathematics. Each program is characterized by a distinguished faculty, small classes and excellent facilities. Classes offered in the late afternoon make graduate study at UMB particularly attractive to those who work in the Greater Boston community. Graduate study is part of the University's commitment to serve its students — to satisfy their special needs and varied interests. To fulfill this commitment, more programs — some will have a multidisciplinary focus — are being prepared.

Further information and applications are available in the Graduate Office or by writing to the Director of Graduate Studies. Application fees are $10 for Massachusetts residents and $25 for non-residents and foreign students. Program descriptions are available either in the Graduate Office or in the respective departments. Applicants should consult both the UMB Graduate Bulletin and relevant sections of this Bulletin for further information.

Admission

All graduates of approved colleges, universities, or institutions who hold the B.A. or B.S. or other bachelor's degrees are eligible to apply for admission to the Graduate Program. Admission is only for the semester requested and cannot be guaranteed for a later date. Application forms can be obtained by writing to the Director of Graduate Studies, University of Massachusetts at Boston, Harbor Campus, Boston, MA 02125. Application for admission, with supporting documents, should be sent in duplicate to the Office of the Director of Graduate Studies. The application and the accompanying documents must be received by April 15 for September enrollment, and November 15 for the January enrollment. Applications received after these dates can be considered only on a space available basis.

Admission to Graduate Studies does not automatically indicate candidacy for an advanced degree. Such candidacy is subject to specific requirements as defined by the individual departments. Students must secure the approval of the chairperson of the department in which they desire to major before they can become a candidate for a degree in that subject.

Applicants can be admitted to Graduate Studies in one of the two following categories:

Degree Status: a student admitted as fully qualified to undertake a program toward a graduate degree.

Special Student: any student who is not admitted to a graduate program but who is allowed to enroll in courses.

General Admission Requirements

1. Minimum cumulative grade point average of 2.75.
2. A bachelor's degree or the equivalent from any college or university of recognized standing.
3. Two official transcripts of all previous college work (graduate and undergraduate). An applicant should request the Registrar of all colleges previously attended to send two copies of the transcript directly to the office of the Director of Graduate Studies. A final transcript showing that the bachelor's degree has been awarded must be received before the applicant can enter Graduate Studies.
4. Two letters of recommendation from persons in the field of the applicant's academic major at the institution most recently attended. Applicants whose academic record goes back further than five years may substitute other references, subject to departmental acceptance.
5. The Graduate Record Examination (both Aptitude and Advanced Tests) are not required in all departments but the scores should be submitted if available. Biology and Chemistry Departments require appropriate GRE exams. Addresses of the Graduate Record Exam test centers are available from the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey 08540.
6. For foreign student requirements see section entitled Foreign Applicants.
7. The applicant must be accepted by both the department(s) and the Director of Graduate Studies.

Foreign Applicants

The Test of English as a Foreign Language (TOEFL) is required of all applicants for admission to Graduate Studies from countries whose native language is not English. Information about the examination may be obtained by writing:

Departmental Courses and Requirements

Test of English as a Foreign Language
Educational Testing Service
Princeton, New Jersey 08540

TOEFL may be waived if the applicant has ttended an English speaking college or univer- ity for a period of at least two academic years. n all other cases, a score of 550 or above is equired. Students scoring between 500 and 49, who otherwise meet the requirements set y departments, may be admitted with special ermission of the department in which they lan to major.

Readmission

A student or applicant who falls into one of hese categories must reapply:

1. An applicant who has previously been admitted to the University but did not enroll on the entrance date stated in the acceptance letter;
2. A graduate student at this University who was accepted for one degree program and wishes to apply for another program or degree; and
3. A degree candidate who has not enrolled in courses or paid the program fee must reapply and pay all associated fees.

Master's Degree Requirements

1. Thirty graduation credits. Up to six credits of grade B or better may be transferred from other institutions with the consent of the department. Twenty-one of the 30 credits must be in the major field. Up to six credits may be counted from undergraduate work with the consent of the department.

2. The thesis and general examination are optional with the school or department, but if required, they shall be under the supervision of a committee recommended by the major department. The thesis committee will consist of members of the faculty at the discretion of the Chairperson of the department, and should be appointed as soon as possible after the student's first graduate registration. As soon as the student arrives on campus, and prior to the appointment of a thesis committee, an advisor, or guidance committee should be appointed for the student from the members of the faculty. Once the student has selected his thesis topic, the guidance committee may serve as the thesis committee, although these two committees are not necessarily the same.

   The thesis must be approved by the thesis committee, the department chairperson, the advisor, and those members of the faculty in the major department designated by the department Chairperson to approve the thesis. The general examination (not limited to the thesis) is conducted by an examining committee of at least three members of the faculty. The recommendation of a majority of the members of the examining committee shall be requisite to receiving the degree. If a student offers a thesis, problem courses shall be limited to six credits.
3. All foreign language requirements for the Master's degree are optional with the department.
4. Course credits used by any student for fulfilling the requirements for a Master's degree may not be used by the student for fulfilling the requirements for any other Master's degree at this University.
5. Students should consult program descriptions for further requirements.

STUDENT EXPENSES

The financial requirements of the University, changing costs, state and legislative action, and other matters may require an adjustment of these charges and expenses. The University reserves the right to make adjustments to the estimated charges and expenses as may from time to time be necessary in the opinion of the Board of Trustees. The applicant acknowledges this reservation by the submission of an application for admission or by registration.

Entrance Expenses
Application Fee:

Each application for admission to the University must be accompanied by a non-refundable application fee payment of $10.00 for qualified Massachusetts residents; $25.00 for non-Massachusetts residents. Checks should be made payable to the UNIVERSITY OF MASSACHUSETTS AT BOSTON.

GM-FEES HALF RATE
8 credits or less

Tuition — Out-of-State	$77.50 per credit
In-State	33.50 per credit
Activities	7.50
Health	12.00
Athletic	2.50
I.D.	1.00
Medical Insurance	58.00*
PIRG	2.00

*Optional

GM-FEES FULL RATE
9 credits or more

Tuition — Out-of-State	$77.50 per credit
In-State	33.50 per credit
Activities	15.00
Health	24.00
Athletic	5.00
I.D.	1.00
Medical Insurance	58.00*
PIRG	2.00*

*Optional

FINANCIAL AID

Financial Aid at the University of Massachusetts at Boston is awarded to those students who cannot provide the full cost of their education through their own and their families' reasonable efforts. The term "financial aid" is used to include scholarships, grants, long term loans and part-time employment.

The following types of aid are administered by the Financial Aid Office at UMass-Boston and awards are based primarily on financial need.

National Direct Student Loan Program (NDSL)

The Higher Education Amendments of 1973 provide for establishment at institutions of higher education of National Direct Student Loan Funds for the purpose of making long-term, low-interest loans to qualified students in need of financial assistance to pursue a course of study on at least a half-time basis at such institutions.

College Work-Study Program (CWSP)

The purpose of the College Work-Study Program is to expand part-time employment opportunities for students, particularly those from low-income families, who are in need of the earnings from part-time employment in order to pursue a course of study at an eligible institution. Federal grants are made to eligible institutions to enable them to create job opportunities for their eligible students. The institution may arrange for the employment of its eligible students to work for the institution and/or to work in the public interest for a public non-profit oragnization.

Guaranteed Student Loan Program (HELP LOAN)

HELP Loans are offered through a student's home town bank or credit union. The program was designed to supplement existing financial resources. HELP Loans are available to both undergraduate and graduate students and range from $1000-$2500 per academic year. If the student meets the requirements for interest subsidy, the Federal Government will pay the interest while the student is enrolled and during the nine (9) month grace period. Subsidy eligibility is determined by the school and lender under Federal guidelines.

UMass/Boston Tuition Waiver

This program will be for those students eligible under State Law, who are not currently receiving or who are ineligible to receive sufficient grant/or scholarship assistance and who have already undertaken reasonable levels of self-help assistance (loans and employment earnings).

Applications and more information are available from the Financial Aid Office.

Summer School

Selected graduate courses are offered during the Summer. The Summer School operates on a fee-assisted, self-supporting basis; thus courses are offered only when sufficient student demand is demonstrated.

BIOLOGY

Faculty

Kamaljit Bawa, Ph.D. Punjab University *Plant Ecology*, Ruth Bennett, Ph.D. Tufts University *Neurophysiology*, John Ebersole, Ph.D. U.C.L.A. *Marine Ecology*, John Freeberg, Ph.D. Harvard University *Plant Morphogenesis*, William Hager, Ph.D. Temple University *Photosynthesis*, Bettina Harrison, Ph.D. Boston University *Immunology and Ultrastructure*, Jeremy Hatch, Ph.D. Duke University *Animal Behavior and Ecology*, Lawrence Kaplan, Ph.D. University of Chicago *Archeological Botany*, Christine Kibel, Ph.D. University of London, University College *Neurophysiology*, Herbert Lipke, Ph.D. University of Illinois *Biochemistry*, David Policansky, Ph.D. University of Oregon *Population Genetics*, Michael Rex, Ph.D. Harvard University *Marine Ecology*, Walter Rosen, Ph.D. University of Wisconsin *Plant Physiology*, Fuad Safwat, Ph.D. Washington University *Plant Morphogenesis*, Ruth Schmitter, Ph.D. Harvard University *Algal Biology*, John Schultz, Ph.D. Brown University *Animal Development*, Edna Seaman, Ph.D. University of Illinois Urbana *Molecular Genetics*, Harland Sheerin, Ph.D. University of Maine *Animal Physiology*, Nevin Weaver, Ph.D. Texas A & M *Biology of Insects*, Claire Van Ummersen, Ph.D. Tufts University *Developmental Biology*, Richard White, Ph.D. Washington University *Vision Physiology*, Garrison Wilkes, Ph.D. Harvard University, *Plant Genetics and Evolution*.

Admission Requirements

In addition to the University-wide requirements for admission, each applicant to the Graduate Program in Biology must submit a completed application form, three letters of recommendation, and scores of the Graduate Record Examination including one advanced test.
An applicant is expected to have a grade point average of 3.0 in all undergraduate science and mathematics courses. The stated interests of a prospective student must coincide to an acceptable degree with faculty specialties represented in the department. The Biology Graduate Committee is responsible for reviewing applications and for recommending candidates to the Director of Graduate Studies.

The Program and Facilities

The Biology Program is designed to accommodate students of various backgrounds who wish rigorous training leading to the degree Master of Science in Biology.

Our modern facilities support programs in most phases of biology and include all of those normally found in laboratories in the biological sciences. There are research laboratories for faculty members and graduate students and teaching laboratories for graduate courses. Equipment, such as electron microscopes, amino acid analyzers, and controlled temperature growth chambers, is available for graduate student use.

The Campus is located on Boston Harbor, and therefore one type of marine environment is readily accessible, in addition, arrangements can be made for the use of the marine facilities on Nantucket Island and at Gloucester. Through cooperation of the Waltham Field Station of the University, we have facilities for large plantings of botanical materials. There are other institutions in the area with which we have informal arrangements so that some rather specialized facilities can be made available if they are needed.

Degree Requirements

Thirty credits are required for the Master's Degree. Each student will be assigned to a three-member advising committee which will consider the student's training and goals and, in consultation with the student, establish an appropriate program of study. The advising committee will be responsible for insuring that the candidate for a degree fulfills all requirements of the department and the graduate school. Students who choose to write a thesis will have a thesis advisor and must enroll in Biology 900 (Thesis Research). All other students are required to take Biology 901 (Projects in Biology). In addition, all students must take at least 1 semester of Biology 750 (Seminar in Biology) as partial fulfillment of Master's Degree requirements.

Graduate students may select courses at the 600 level or above, subject to the permission of the instructor. All 600 level courses are open to both advanced undergraduates and graduate students. One course may be selected from the course offerings in the Biology Department at the 300-500 level, subject to the approval of the student's advisor and of the departmental Graduate Committee. The student will be expected to perform extra work in such a course. One elective course may be selected from course offerings of other departments in the University at the 200 level or above, subject to approval by the student's advisor and the departmental Graduate Committee.

A student writing a thesis will be required to submit a thesis outline to the thesis committee for approval at least 3 months prior to the Master's oral examination. Once approved and signed by each committee member, a copy of the outline will be placed in the student's file. All Master's candidates must take a general oral examination which will not be limited to the thesis topic. The examination is conducted by a committee of at least three members of the Biology faculty.

The student must deposit the original copy of his/her thesis, plus one photocopy, with the University Library and pay the cost of binding. Another copy will be deposited with the Biology Department. Each graduate student will be required to submit a completed Certification of Eligibility for a Master's Degree form for the Department Chairperson's signature prior to

eceiving the degree. The form should be filled ut by the student.

02 Plant Physiology
Current developments in plant physiology, morphogenesis and biochemistry.
Prerequisite: Permission of instructor.
Hrs by Arrangement 3 Credits
Staff

04 Biology of Cities
The biology of humans and the metabolism of ities: the origin and development of cities, the iology of resources, food, air, water, energy uels, and waste materials, the city as environ- nent, innovation and change.
Prerequisite: Permission of instructor.
Lect Hrs 3 Credits
Mr. Wilkes

12 Advanced Cell Biology
The analysis of gene transfer and expression at he cellular level, including the nature of netabolic systems and the factors governing heir regulation.
Prerequisite: Permission of instructor.
Hrs by Arrangement 3-5 Credits
Staff

13 Archeological Botany
Laboratory tutorial. Recovery, identification nd analysis of macroscopic plant remains, pol- en and spores from archeological and geologi- al deposits, interpretation of the data derived nd their botanical, archeological and aleoecological applications.
Prerequisite: Permission of instructor. The umber of credit hours will be determined by rior consultation with instructor.
Lab-Disc Hrs Per Credit 2-5 Credits
Mr. Kaplan

14 Advanced Cell Chemistry
The methodology of cell analysis, with em- hasis on macromolecules and intermediary netabolites.
Prerequisite: Permission of instructor.
Hrs by Arrangement 3-5 Credits
Staff

22 Concepts and Methods in Cytology
The structural basis of cellular and subcellular unctions, with practical experience in methods f visualizing cellular structure.
Prerequisite: permission of instructor.
Hrs by Arrangement 3-5 Credits
Staff

624 Algal Physiology
Examination of current research areas in algal physiology, selected from such topics as algal nutrition, chromatic adaptation, symbiotic relationships, control of planktonic sinking rates, secretion of specialized products (polysaccharide, carbonate, silica), and control of sexuality.
Prerequisite: Biology 211 and 324 or permission of instructor.
2 Lect Hrs, 1 Sem Hr 3 Credits
Ms. Schmitter

632 Advanced Evolution
An inquiry into the modern synthetic theory of evolution with emphasis on population genetics, ecological genetics, evolution of dominance, genetic homeostasis, canalization and genetic theory of polymorphism.
Prerequisite: Permission of instructor.
Hrs by Arrangement 3 Credits
Staff

638 Advanced Ecology
Concepts of population and community ecology. Topics covered may include population dynamics, life history strategies, theory of R- and K- selection, competition, predation, community organization, and species diversity. Particular emphasis is placed on the relationship between theoretical and empirical ecology. A weekly tutorial will provide opportunity for greater discussion of material covered in lecture. Emphasis changes from year to year.
Prerequisite: Biology 342 or permission of instructor.
2 Lect Hrs, 1 Disc Hr 3 Credits
Staff

642 Biogeography
A study of geographical distribution patterns in plants and animals. Includes historical and descriptive aspects of the distributions of organisms, experimental and comparative tests of island biographical theory, the population genetics and evolutionary strategies of colonizing species. Lectures by instructor, one discussion session per week. Independent research by students that will be presented to the class in seminar form.
Prerequisite: Biology 342 and 352 or equivalents. Some knowledge of statistics and calculus highly recommended.
Hrs by Arrangement 3 Credits
Mr. Rex

643 Behavior and Ecology of Seabirds
Adaptations of seabirds to the marine environment with particular reference to breeding biology and feeding strategies; other topics of current interest in behavioral ecology. Lectures or lecture and field work.
Prerequisite: Permission of instructor.
Hrs by Arrangement 2-5 Credits
Staff

645 Ecological and Evolutionary Aspects of Plant-Animal Coevolution
Coevolution of plants and animals will be examined in an ecological context. Interactions to be examined include pollination, seed predation, herbivory and grazing. The role of these interactions in the regulation of community structure will be discussed. Although emphasis will be on tropical communities, alpine, temperate, and desert communities will also be covered.
Prerequisite: Biology 240 and 342 or 352 or permission of instructor.
3 Lect Hrs 3 Credits
Mr. Bawa

650 Advanced Ethology
Examination in depth of topics in the biological study of behavior with particular reference to communication and the evolution of social behavior. There will be lecture-discussions and occasional lab exercises and field trips.
Prerequisite: For graduate students and seniors with appropriate background in Biology including 240, 250 and/or 348 and permission of instructor.
Hrs by Arrangement 3 Credits
Mr. Hatch, Mr. Weaver

660 Seminar in Developmental Biology
Current problems in developmental biology. Molecular and cellular differentiation, and pattern determination.
Prerequisite: Biology 312 or 314 and permission of instructor.
3 Sem-Disc Hrs 3 Credits
Staff

662 Photobiology
The photochemical reactions that occur in biological systems. Major topic areas are: properties of light energy, utilization of light energy by photosynthetic organisms, mechanism of visual transduction, photochemical triggering mechanisms for developmental processes.
3 Lect Hrs 3 Credits
Mr. Hagar, Mr. White

666 Seminar in Neurobiology
Structure, function and development of sensory receptors, neurons and muscles.
Prerequisite: Biology 316 or 318 and/or permission of instructor.
3 Lect Hrs 3 Credits
Staff

668 Advanced Physiology
Experimental studies in selected areas of organismal and cellular physiology. Provisions will be made for independent projects during the course. One weekly seminar plus one weekly lab meeting, open to graduate students and to qualified advanced undergraduates.
Prerequisite: Biology 316 or 372 or equivalent, Organic Chemistry, Physics, and permission of instructor.
1 Sem Hr, 4 Lab Hrs 3 Credits
Staff

670 Tissue and Organ Culture
Methods of plant and animal tissue and organ culture will be presented with special emphasis on problems of differentiation and morphogenesis in vitro. Introduction of certain techniques now used in plant protoplast culture and for hybridization of somatic cells in plants and animals. Provisions will be made for independent projects during the course.
Prerequisite: Permission of instructor.
1 Lect Hr, 6 Lab Hrs 3 Credits
Mr. Safwat, Ms. Van Ummersen

672 Directed Readings in Biology
Selected readings in advanced areas of biology with guidance and regular discussion.
Prerequisite: Permission of instructor.
Hrs by Arrangement 1 Credit
Staff

680 Methods in Comparative Biochemistry
Analysis of tissues and subcellular particulates from microorganisms, plants, invertebrate and vertebrate animals to reveal physiological differences and evolutionary trends as expressed by chemical differences. The use of chromatography, spectrophotometry, tracer methodology and chemical derivation for the analysis of tissues and organelles isolated by dissection and differential centrifugation. Techniques for cell disruption and sampling will be presented along with instruction in the operation of equipment for the separation, purification and identification of tissue constituents.
Prerequisite: Permission of instructor.
6 Lab Hrs 2 Credits
9 Lab Hrs 3 Credits
Mr. Lipke

690 Concepts in Modern Biology
A field of biology of current interest is examined in detail.
Prerequisite: Permission of instructor.
Hrs by Arrangement 2-5 Credits
Staff

750 Scientific Communication I
Two-semester course required of all graduate students in biology during their first year. To develop skills in library research in clear, technical writing.
2 Sem Hrs and Mandatory Attendance at Biology Department seminars. 2 Credits
Staff

751 Scientific Communication II
Continuation of Biol 750, emphasis on speaking and other aspects of communication.
1-2 Sem Hrs and mandatory attendance at Biology Department seminars. 1 Credit
Staff

900 Thesis Research
Substantial laboratory or field research resulting in a master's thesis. This course may not substitute for Biology 901 (these two courses are mutually exclusive). No more than 10 credits of this course may be applied to the master's degree. The credit may be applied over more than one semester.
Hrs by Arrangement 2-10 Credits
Staff

901 Projects In Biology
A substantial written report based on a library research or an original project such as curriculum design, design of teaching aids and exercises, critique of a book or theory, etc. Biology 900 and Biology 901 are mutually exclusive. No more than 6 credits of this course may be applied to the master's degree. The credit may be applied over more than one semester.
Hrs by Arrangement 6 Credits
Staff

CHEMISTRY

Faculty

Joseph S. Alper, Ph.D. Yale University *Theoretical Chemistry*, Jean-Pierre Anselme, Ph.D. Polytechnic Institute of Brooklyn *Synthesis and Mechanisms of Organic Nitroge Compounds*, Ernest I. Becker, Ph.D. Weste Reserve University *Organometalli Compounds-Phytobiologically Importar Compounds*, Robert L. Carter, Ph.D. Unive sity of Kansas *Structural Studies of Inorgani Solids by Infrared and Raman Spectroscop* Robert I. Gelb, Ph.D. University of Wisconsi *Chemistry of Electrode Processes and of Solu tion Equilibria*, Daniel A. Laufer, Ph.D. Bra deis University *Synthesis and Properties Biomolecules, Polymeric Reagents*, Thom N. Margulis, Ph.D. University of Californ (Berkeley) *X-Ray Crystallography of Drug and Natural Products*, Lowell M. Schwart Ph.D. Massachusetts Institute of Technolog *Physical Properties of Oxocarbons, Statistic Treatment of Data*, Hans van Willigen, Ph.D University of Amsterdam *Application of Spi Resonance in the Study of Structure an Dynamics*, Chi-Hua Wang, Ph.D. St. Lou University *Chemistry of Free Radicals in Solu tion*, Walter E. Weibrecht, Ph.D. Cornell Un versity *Equilibrium Studies of Transaminatio of Silylamines*, Elliot M. Weinstock, Ph.D Brown University *Electronic Structure Diatomic Molecules*, Leverett J. Zompa, Ph.D Boston College *Chemistry of Transition Met Complexes*.

Admission Requirements

The Chemistry Department will recommen admission to the program for those applican who present evidence of their ability to d graduate work with distinction. Such evidenc normally will include: (1) a distinguished ur dergraduate transcript with at least an averag of B or 3.0 in undergraduate Chemistr courses; (2) at least three encouraging and in formed letters of recommendation. While n required, the submission of Graduate Recor Examination Scores (aptitude and advance tests) is highly recommended.

The Program and Facilities

A Master's Degree Program is offered whic will serve graduate students with interest i chemical research as well as students with in terests in some interdisciplinary, chemistry related field. The degree requirements are fle ible in order to allow a student to take as man as half of his graduate courses outside c chemistry and to enable him to submit a thes in a tangential area. We envisage candidate working in such widely diverging fields a laboratory research, chemical economics, hi

ory of chemistry, biological chemistry, and hemical writing and editing. All candidates or the degree of Master of Science are required o take one graduate chemistry course in each of he three areas of Synthesis, Structure, and ynamics. These courses, which cut across the raditional boundaries of Organic, Inorganic, nalytical and Physical Chemistry, are designed to give the students of diverse ackgrounds and with diverse aims a broad verview of the recent advances in chemistry. hree elective courses will allow the student to pecialize in a field of his/her choice. Thus, for tudents aiming toward a research oriented h.D. degree, the option is available for taking maximum number of chemistry courses and lecting to work on a research project.

This flexible program is designed for recent raduates as well as people having positions in igh schools, community colleges and industry ho are seeking advancement by extending rofessional training. Attempts will be made to ake scheduling arrangements for those who ust study part-time.

The Department of Chemistry is housed in he spacious, air-conditioned Science Building f the Harbor Campus. Facilities include aboratory space for research of fifteen faculty, science library, glassblowing, machine and lectronic shops.

Research facilities presently available include:

- numerous uv, vis and ir spectrophotometers
- an ORD/CD and laser Raman spectrophotometer
- nuclear magnetic resonance and electron spin resonance equipment
- a fully equipped laboratory for X-ray crystallographic studies
- instruments for flash photolysis
- a tunable dye laser
- electroanalytical and radiochemistry equipment
- analytical and preparative gas-chromatographs
- extensive computing facilities

Degree Requirements

The candidate is required:

1. To take six one-semester courses of which one is to be in each of the areas of Dynamics, Structure and Synthesis (3 credits per course). All students *must* successfully complete (B or better) CH 701, 711, 721 in order to become degree candidates.
2. To submit and defend an original contribution (thesis) in chemistry or in a chemistry related field (10 credits maximum).
3. To participate in a seminar program. This requirement includes the oral presentation of two (2) seminars.

The elective courses can be selected from course offerings of other Departments in the University subject to approval of the Graduate Committee of the Department.

For graduation the candidate needs 30 graduation credits. Up to six credits of grade B or better may be transferred from other institutions subject to the approval of the Graduate Committee of the Department.

701 Chemical Dynamics I
Discussions and outside readings in the areas of chemical and physical equilibria and rate processes. Emphasis on thermodynamics from classical and statistical points of view and on chemical reaction mechanisms.
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 3 Credits
Staff

702 Chemical Dynamics II
Three or four selected topics of interest to students and staff involved. Typical subjects — molecular transport processes and the kinetic theory, photochemistry and excitation transfer processes, surface and electrode rate processes, particle collision dynamics and reactivity, irreversible thermodynamics, interaction of radiation and matter, and molecular state transitions.
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 3 Credits
Staff

711 Chemical Structure I
Structure determination and theory. Three or four molecules of interest to the students and faculty involved are chosen. Based on these molecules, discussions, readings and laboratory exercises attempt to show how a chemist determines each structure and how the structure is understood by modern chemical theory.
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 3 Credits
Staff

712 Chemical Structure II
In tutorial form. Individual students study advanced structure topics with appropriate staff members.
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 3 Credits
Staff

721 Chemical Synthesis I
The tactics and strategy of accomplishing the synthesis of a chemical substance. Examples of organic and inorganic systems.
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arranagement 3 Credits
Staff

722 Chemical Synthesis II
The synthesis and characterization of a number of representative organic and inorganic compounds.
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 3 Credits
Staff

900 Master's Thesis
10 Credits Maximum
Hrs by Arrangement 1-10 Credits
Staff

925 Seminar I
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 1 Credit
Staff

926 Seminar II
Prerequisite: Acceptance into the Graduate Chemistry Program, or permission of instructor.
Hrs by Arrangement 1 Credit
Staff

ENGLISH

Faculty

Ann Berthoff, M.A. Radcliffe College *17th Century Poetry, Teaching Methods, Literature Theory,* Joel Blair, Ph.D. Harvard University *18th Century Literature, Satire,* Max Bluestone, Ph.D. Harvard University *Elizabethan*

Drama, Shakespeare, James Broderick, Ph.D. Harvard University *19th Century Literature, Literary Criticism*, Josephine Bunselmeyer, Ph.D. Fordham University *Shakespeare, Linguistics*, Robert Crossley, Ph.D. University of Virginia *19th Century Prose, The Novel*, Linda Dittmar, Ph.D. Stanford University *Modern Novel*, Albert Divver, Ph.D. University of Michigan *19th Century Poetry, Poetics Linguistics*, Mary Anne Ferguson, Ph.D. Ohio State University *Medieval Literature, Linguistics*, Philip Finkelpearl, Ph.D. Harvard University *16th Century Literature, Shakespeare, Elizabethan Drama*, Edwin Gittleman, Ph.D. Columbia University *Colonial and Romantic American Literature*, F. Russell Hart, Ph.D. Harvard University *18th and 19th Century Literature, Teaching Methods*, Alan Helms, Ph.D. Rutgers University *Modern Poetry*, Susan Horton, Ph.D. Brandeis University *19th Century Literature, Stylistics* Seymour Katz,Ph.D. Harvard University *American Literature*, Richard Lyons, Ph.D. Princeton University *Modern British and American Fiction, 19th Century Literature*, Emerson Marks, Ph.D. New York University *19th Century Literature, Literary Criticism*, Monica Alpine, Ph.D. University of Rochester *Medieval Literature, Chaucer*, Duncan Nelson. Ph.D. Harvard University *Teaching Methods*, Shaun O'Connell, Ph.D. University of Massachusetts *Modern American Fiction, The Novel*, Alvan Ryan, Ph.D. Iowa *Romantic and Victorian Literature*, Mary Shaner, Ph.D. University of Illinois *Chaucer, Old English*, George Slover, Ph.D. Indiana University *Theatre History, Elizabethan Drama*, George Smith, Ph.D. University of Virginia *Milton*, Irvin Stock, Ph.D. Columbia University *Modern Drama*, Taylor Stoehr, Ph.D. University of California at Berkeley *American Literature*, Joseph Tribble, Ph.D. Harvard University *American Literature*, Igor Webb, Ph.D. Stanford University *19th Century Literature*, Frederick Willey, Ph.D. Harvard University *The Novel, Literary Theory.*

Admission Requirements

The Committee will offer admission to the program to those applicants who present evidence of their ability to do graduate work with distinction. Such evidence will include: (1) a distinguished undergraduate transcript with, generally, at least an average of B or 3.0 in undergraduate English courses; (2) at least three encouraging and informed letters of recommendation from the applicant's undergraduate teachers (in English or related fields) or from others competent to comment on the applicant's academic qualifications; (3) a statement by the applicant (of 800 to 1200 words) of his major interests in the advanced study of English. While not required, the submission of Graduate Record Examination Aptitude scores (Verbal and Mathematical) is highly recommended.

The Program

The English Department of the University of Massachusetts at Boston offers a coherent, self-contained program of studies leading to the Master of Arts Degree in English. As vitality and variety are the distinctive features of English Studies, so too are these the distinctive features of the English M.A. Program at UMB. Thus course offerings reflect the range of approaches to literature: between English and American, among significant periods, between genres, and among major authors. Our purpose in offering such a program is to serve three groups of students: those who plan a career in secondary school teaching, those who plan to go on to earn a Ph.D., and those, without defined vocational goals, who seek to increase their understanding and enjoyment of English and American literature. While concerned to satisfy all these groups, the English M.A. at UMB has been designed primarily to be of benefit to those whom the program serves in greatest number — those who plan careers in secondary school teaching. The program fulfills its special responsibility to this group through the patterned offering of a series of seminars — studies in particular genres, "The Teaching of Literature" and "The Teaching of Composition" — which, while constituting legitimate approaches to the study of English and American literature, also are of particular professional relevance to those who now teach or plan to teach in secondary schools. Taken together, the pattern of courses under the English M.A. Program serves all who, for whatever reason, are interested in gaining a greater command of English and American literature. The degree candidate may propose a semester's unit of independent study including writing which, if approved, may substitute for one required semester course. All graduate courses carry five credits.

Degree Requirements

Requirements for the M.A. Degree in English include the satisfactory completion of six semester graduate-level courses (30 credits). The graduate student may enroll in two advanced undergraduate courses in English or related fields at the University of Massachusetts at Boston and substitute these two courses for one of the six graduate courses required for the degree. A student wishing to transfer credits earned elsewhere may petition for evaluation of such credits up to six (6) transfer credits may be accepted. The degree candidate must earn at least a 3.0 (B) cumulative average in courses taken for graduate credit at the University of Massachusetts at Boston.

A graduate student must demonstrate a reading knowledge of one foreign language, ancient or modern. The reading knowledge may be demonstrated either by achieving a score of 575 or better on the ETS Graduate School Foreign Language Test (GSFLT administered from Princeton, N.J.), or by earning an A or B in an advanced undergraduate foreign literature course (400 level) at the University of Massachusetts at Boston in which works will be read in the original foreign language. The language requirement will also be fulfilled if the student has earned an A or B in such a course as an undergraduate at University of Massachusetts at Boston, or (by petition) in a course at an equivalent level elsewhere. Students who plan a career limited to secondary-school teaching, and who have no intention of later proceeding to the Ph.D., may petition for the waiver of the foreign language requirement. Waiver will also be granted to students whose command of an approved foreign language is so obvious as to make further examination of course requirement superfluous.

702 The Black Presence
Study of selected literary texts of the last two hundred years by major and minor authors who wrote with a special consciousness of the significance of Black people in American society.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Gittelman

703 Regional Literature
The subject of the course is the regional consciousness in representative works of modern American writers of the South and New England. We will explore the role that the sense of history (the impingement of the past on the present), the sense of place and the response to the natural world play in the work of Southern and New England writers.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Staff

704 Hawthorne and James
A study of the relationship between the fiction of Hawthorne and James, focusing on James' criticism of Hawthorne.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Katz

705 Contemporary American Fiction
A study of the scope (times and types) and strains (types and tensions) in the post WWII, post modern American novel, with special attention to the persistence of realism, the insistent presence of surrealism, and the sometime combination of the two.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. O'Connell

706 Modern American Poetry
Studies in the poetry and selected prose of Robert Frost, E.A. Robinson, Robert Lowell, and Alan Tate, with complementary readings in other modern American poets.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Staff

718 History of the English Language
Description and analysis of modern English from a linguistic perspective; attention to the relationship of linguistic analysis to literature. A survey of old English, middle English, early modern and 18th century English, with its stress on traditional grammar.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Ms. Ferguson

719 Studies: Early Drama
A study of the development of form — particularly the forms of comedy and tragedy — in the drama of Shakespeare's predecessors and contemporaries. Readings of selected mystery and morality plays and of works by such playwrights as Marlowe, Kyd, Marston, Tourneur, Webster, Greene, Dekker, Jonson, Beaumont and Fletcher. One play of each kind by Shakespeare.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Slover

720 Chaucer
A study of Chaucer's major work in the middle English, special attention to such considerations as Chaucer's poetic development, his relations to his sources, medieval literary theory, and the social, political, and religious backgrounds.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Ms. McAlpine, Ms. Shaner

721 Medieval to Renaissance Literature
A course in the transition from medieval to renaissance literature. We will study the transition in prose from homiletic writings and the romances through Elyot, Ascham, and Lyly; in lyric and narrative verse from Chaucer and the Scottish Chaucerians through Hamlet.
3 Lect Hrs, 2 Conf. Hrs 5 Credits
Ms. Shaner

723 Metaphysical Poetry
The course will survey the major English poets called 'metaphysical' in their historical context: Herbert, Vaughan, Crashaw and Marvell.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Divver

724 Studies in Elizabethan and Jacobean Poetry
Poetry of the English Renaissance, roughly the period beginning with Wyatt and ending with the early Milton, forms the foundation of modern literary studies. It does so in two ways. First, literary (poetic) expression and the English language grew from medieval to what we recognize as 'modern' in the work of the great masters. Second, modern English literature and criticism is intimately involved with the line of writers that includes Sidney, Spenser, Shakespeare, Donne, Jonson, Herbert, Marvell and Milton. The present course will study not only the development of poetry in the 16th and 17th centuries but also the way in which that poetry has informed, influenced and in a sense made our modern view of our own poetry and of the poetry of the past.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Divver

725 Milton
A study of the poetry and major prose with particular attention to *Paradise Lost*; Milton's style, his relations to traditional literary forms, his thematic concerns with freedom; an examination of Milton critcism.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Smith

726 New Approaches to Medieval Literature
There have been revolutions in critical thought on medieval literature in the twentieth century. This course will be an introduction to them. We will focus on *Beowulf* (in translation, of necessity, although students who have studied old English may find this course an interesting

sequel); Chaucer's *Troilus and Criseyde*; and medieval drama. We will examine medieval literacy and critical theory, the 'historical' approach of the nineteenth century critics, and the seminal essays and books of the twentieth century that have literally transformed modern criticism of medieval literature: J.R.R. Tolkien's *The Monsters and the Critics*, D.W. Robertson's *A Preface to Chaucer*, and the writings of Donald Howard, Robert Kaske, Monica McAlpine, and other contemporary thinkers and scholars.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Ms. Shaner

733 Augustan Satire
Study of the major Augustan satirists — Dryden, Swift, and Pope — with attention paid to the works of Rochester, Addison, Gay, and Fielding: consideration of the critical questions arising from the study of satire.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Blair

741 Romantic Literature
The seminar will approach the unity of romanticism through consideration of three important modes of British poetry, fiction and criticism in the period from c. 1790 to c. 1832; the visionary (primarily Blake and Wordsworth), the picturesque (Scott and Byron), and the aesthetic (chiefly Keats, with related readings in the criticism of Hazlitt).
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Hart

746 Victorian Literature
Aestheticism and socialism in Victorian literature. The subject of the course is the development of two issues in the work of some major Victorian writers: the movement away from the classical view that art is normative to an increasing acceptance of the view that art is autotelic; and an accompanying movement away from a special concern with art to a concentration on social reform.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Broderick

751 Modern Poetry
A study of the major figures and currents in modern British Poetry: Hardy, Hopkins, Eliot, Auden, Lowell, Ginsberg.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Helms

752 Lawrence and Woolf
A comparative study of the major novels of D.H. Lawrence and Virginia Woolf, with particular attention paid to the two writer's conception of the nature and function of the novel and to their relation to the literary contexts of the period, 1914-1940.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Lyons

760 Studies in Poetry
Studies in the nature of poetry; an examination of modes. A reading of representative English and American poetry.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Willey

761 Studies in the Novel
Studies in the nature of prose fiction and the major kinds of novels. A reading of representative novels in English and American literature, with the permission of the director of graduate studies in English. This course may be repeated for credit.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. O'Connell

762 Studies in Drama
A study of English and American drama from an awareness of its European contexts. Plays discussed will come from the major periods of Western drama and will provide examples of the major kinds of drama.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Stock

763 Studies in Satire
An exploration of individual works of satire and critical theories about the mode: premodern and modern selections from Swift, Pope, Shaw, Waugh, F. O'Connor, N. West, Eliot and others.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Blair

764 Nature of Narrative
This course explores a variety of ways in which modern and contemporary fiction departs from traditional narrative forms. While a comparative study of experimentation will be our main concern, we may address philosophical, political, and psychological issues as they affect narrative form in the twentieth century. Class discussions will rely on textual analysis and literary theory to explore the ways in which forms shape meaning and values.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Ms. Dittmar

767 Shakespeare
Shakespeare's idea of dramatic art as revealed in explorations of one of the following topics — the plays and their sources, theatrical self-consciousness, Shakespeare's language of the theater.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Bluestone, Mr. Finkelpearl

776 Studies in Criticism
Study of the nature and function of literature, the terms and methods of analysis and evaluation of literature, and the various approaches possible in the criticism of literature.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Marks
Staff

777 Teaching of Literature
Theories and practice of the teaching of literature, considered in the context of current models of the liberal arts college and of current issues in humanities curricula.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Broderick

786 Literature and Society — 19th Century England
A study of literature with special reference to its social and historical circumstances and of the theoretical questions raised by such a perspective. Authors to be studied include: Austin, Cobbett Gaskell, Dickens, Engels, Charlotte Brontë, and Lawrence.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Webb

791 Literature and Composition
The course will offer opportunities to identify and define those acts of mind involved in composing and to carry out experiments designed to reveal the nature of symbolic transformation as the fundamenetal operation in perception and concept formation as well as in the creation of works of imaginative literature.
3 Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Nelson, Ms. Berthoff

793 The Reading and Teaching of Poetry
Designed for graduate students who want an advanced introductory course, or a refresher course, in the reading and comprehension of poetry, perhaps with the object of teaching it to younger minds. Emphasis on practical criticism, or close reading, but various perspectives and critical approaches are included, along with teaching aids and pedagogical exercises. Concentration on poets of the 19th and 20th

enturies, such as Blake, Keats, Hopkins, Dickinson, Yeats, Eliot, Frost and Lowell.
Lect Hrs, 2 Conf Hrs 5 Credits
Mr. Willey

HISTORY

Faculty

Feroz Ahmad, Ph.D. University of London *Middle Eastern History*, Hatim Amiji, M.A. Princeton University *African History*, Edward Berkowitz, Ph.D. Northwestern University *20th Century American History*, Paul Bookbinder, Ph.D. Brandeis University *German History*, Frances L. Broderick, Ph.D. Harvard University *American Social and Intellectual History Since 1865*, Thomas N. Brown, Ph.D. Harvard University *20th Century American and Immigration History*, Alison W. Conner, LLB Harvard University *Chinese History*, Spencer DiScala, Ph.D. Columbia University *Modern Italian History*, Paul Faler, Ph.D. University of Wisconsin *American Labor and Social History*, Clive Foss, Ph.D. Harvard University *Ancient History*, Paul A. Gagnon, Ph.D. Harvard University *Contemporary French History*, Linda I. Gordon, Ph.D. Yale University *Women's History*, Walter Grossmann, Ph.D. Harvard University *18th Century European History*, Robert E. Hannigan, M.A. Princeton University *American Diplomatic History*, David Hunt, Ph.D. Harvard University *French Revolution*, Esther Kingston-Mann, Ph.D. Johns Hopkins University *Russian History*, Timothy McCarthy, Ph.D. Brandeis University *European Intellectual History*, Frances Malino, Ph.D. Brandeis University Middle *Eastern and Jewish History*, William A. Percy, Ph.D. Princeton University *Medieval History*, Richard H. Powers, Ph.D. Ohio State University *Modern Britain, British Empire and History of Boston*, Eric H. Robinson, M.A. Cambridge University *Economic History and History of Technology*, Susan C. Schneider, Ph.D. University of Texas *Latin American History*, Malcolm R. Smuts, Ph.D. Princeton University *Tudor-Stuart England*, James Turner, Ph.D. Harvard University *American Intellectual History*, Renee Watkins, Ph.D. Harvard University *Renaissance and Reformation*, Sherrin Wyntjes, Ph.D. Tufts University *Women's History and European History*.

Admission Requirements

Applicants must send to the Director of Graduate Studies evidence that they are able to perform graduate work at a high level of competence. This will include (1) the applicant's undergraduate records and those of any graduate work already completed; (2) letters of recommendation from teachers or others acquainted with their talents and professional achievements; (3) examples of their writing, either academic papers or special essays on a topic specified by the Graduate Committee; (4) Graduate Record Examination scores if available. Applicants will normally be expected to have maintained a 3.0 (B) cumulative average in history courses as undergraduates. Applications from persons who did not major in history as undergraduates will be considered but such persons, if admitted, will be expected to devise programs of reading and/or course work to remedy any deficiencies in their preparation for graduate study.

The Program

The Master of Arts program in History offers a rigorous, individually planned set of courses and supervised research and writing designed to serve several kinds of students': those who intend to pursue a Ph.D., those who seek to test their capacity for graduate work before choosing to pursue the doctorate, teachers (mainly at the secondary or two-year college level) who desire to improve their knowledge of the field, men and women who have been out of school and are eligible to return at the beginning graduate level, and those who wish to pursue advanced studies for their own intellectual enjoyment and development. Graduate enrollment is small; the graduate student is afforded close faculty attention and support.

Degree Requirements

Requirements for the Master of Arts Degree in History are 30 credit hours, including a graduate colloquium on historical methodology in students' major fields of interest; a research seminar; additional approved courses (two of which may be outside the Department), and the completion of a Master of Arts thesis. Students must also demonstrate a reading proficiency in one foreign language — French, German, or another judged relevant to each student's major area of interest. This requirement may be met by performing satisfactorily on the ETS Graduate School Foreign Language Test, or by passing a test administered by the Department.

Students may choose to enroll in the program either full or part-time. In normal circumstances it is expected that all requirements for the degree will be completed by full-time students within three years of each student's first enrollment and within four years by part-time students in history.

Before candidates are approved for the Master of Arts Degree, they must be examined in the fields of history in which their theses fall by committees that will consist of three persons, at least two of whom must be members of the Department of History. Examining committees will be convened by the student's thesis director and will include the second reader as well as another member of the faculty appointed after consultations among the thesis director, the student, and the Director of Graduate Studies. To pass these examinations, students must receive at least two affirmative votes. If they fail, they may repeat the examination two times at intervals of not less than three months. If the examination has not been passed within two calendar years from the date upon which the examination was first taken, the student will be removed from degree candidacy, and will be readmitted only through a special petition to the Graduate Committee.

No grade of "C" awarded to a graduate student will count toward fulfilling the requirements for a Master of Arts Degree in History.

701 Topics in United States History
Examinations of important themes in political and social, cultural and intellectual history of the United States in the 19th and 20th centuries.
3 Lect Hrs 4 Credits
Mr. Berkowitz

702 Topics in European History
Examinations of important themes in political and social, cultural and intellectual history of Europe in the 19th and 20th centuries.
3 Lect Hrs 4 Credits
Mr. Powers

800 Graduate Colloquium
An advanced course in historical methodology. Topics to be covered will include historiography, the analysis of argument and evidence, recent developments in historical methods. Required of graduate students.
2 Lect Hrs
Ms. Malino 4 Credits

810 Research Seminar in European History
An advanced course in historical research, to be

taken after the graduate colloquium. Readings and research will draw upon historical materials in European history, and will concern topics to be announced in advance.
2 Lect Hrs 4 Credits
Staff

811 Research Seminar in United States History
An advanced course in historical research, to be taken after the graduate colloquium. Readings and research will draw upon diverse historical materials, primary sources, records, documents in American History, and will focus upon topics to be announced in advance.
2 Lect Hrs 4 Credits
Staff

820 Introduction to Archival Methods
An introduction to archives with instruction in the techniques of collection, survey, description, appraisal and arrangement of manuscripts and records. Eight classes will be taught and students will be asked to participate in four working field trips to local repositories. The course is seen both as basic instruction for records administrators and as a useful introduction to archival principles and practice for potential users. Theoretical readings will be limited, and the emphasis will be on practical exercises in the arrangement, description, survey and appraisal of records.
Prerequisite: Open to any graduate student. Required of archives specialists.
2 Lect Hrs 4 Credits
Mr. Olsberg and participating archivists in the Boston area.

821 Internship in Archival Methods
Guest lecturers will address advanced problems in archives: Copyright, access, privacy, and custody; professional ethics; sampling techniques; provenance and function; automated retrieval systems; paper conservation; etc. Students will present examples of problems encountered in their internship projects and will be required to prepare one seminar paper or lecture on a subject growing out of their internship experience. Required for archives specialists. Only those interning in a repository will be eligible.
2 Lect Hrs 4 Credits
Mr. Olsberg and participating archivists in the Boston area.

850 Independent Study I
Advanced course of independent readings under the guidance, and subject to the examination of the instructor. Areas and topics according to student need.
Hrs by Arrangement 4 Credits
Staff

851 Independent Study II
Advanced course of independent readings under the guidance, and subject to the examination of the instructor. Areas and topics according to student need.
Hrs by Arrangement 4 Credits
Staff

900 Master of Arts Thesis
Under the supervision of the appointed advisor. All topics must be previously approved by the department's graduate committee. The thesis will be judged for its suitability as partial fulfillment of the requirements for a Master of Arts Degree by both the appointed advisor and a second reader selected in consultation with the director of graduate studies.
Hrs by Arrangement 6 Credits
Staff

901 Field Practicum in Archival Methods
All archives and manuscripts specialists will intern up to 8 hours per week in one or another of the participating institutions, but arrangements can be made for students expressing interest in a field (such as church archives or local records) not represented by the participants to work in an appropriate repository. Intern projects will be designed to be completed within the semester and all projects will result in written surveys, finding aids, or preliminary inventories comparable in extent or effort to a master's thesis. The internship and resulting written work will be the equivalent of a 6-credit thesis research and preparation.
Hrs by Arrangement 6 Credits
Staff

MATHEMATICS

Faculty

Bernice Auslander, Ph.D. University of Michigan *Commutative Ring Theory*, Alfonso Azpeitia, Ph.D. University of Madrid *Complex Analysis and Mathematical Programming*, Ethan Bolker, Ph.D. Harvard University *Combinatorial Analysis*, James Byrnes, Ph.D. Yeshiva University *Analysis*, Daniel Comenetz, Ph.D. Brandeis University *Algebraic Geometry*, Ernest Elyash, Ph.D. Cornell University *Probability*, Colin Godfrey, Ph.D. Harvard University *Algebra*, Matthew Gaffney, Ph.D. University of Chicago *Differential Geometry*, Guy Hogan, Ph.D. Ohio State University *Group Theory*, Herbert Kamowitz, Ph.D. Brown University *Functional Analysis*, Joan Lukas, Ph.D. Massachusetts Institute of Technology *Theory of Computations and Mathematical Logic*, Jack Lutts, Ph.D. University of Pennsylvania *Topology and History of Mathematics*, Victor Miller, Ph.D. Harvard University *Number Theory and Computer Mathematics*, Some Nath Mukherjee, Ph.D. B.H. University (India) *Functional Analysis and Transform Calculus*, Elizabeth O'Neil, Ph.D. Harvard University *Applied Mathematics*, Stephen Parrott, Ph.D. University of Michigan *Functional Analysis*, James Perchik, Ph.D. Harvard University *Topology and Computer Mathematics*, Geza Schay, Ph.D. Princeton University *Probability*, Robert Seeley, Ph.D. Massachusetts Institute of Technology *Partial Differential Equations*, Taffee Tanimoto, Ph.D. University of Pittsburgh *Geometry*, Michael Tomlinson, Ph.D. University of Oregon *Functional Analysis*, Dennis Wortman, Ph.D. Massachusetts Institute of Technology *Functional Analysis*.

Admission Requirements

At least 18 semester credit hours in undergraduate mathematics beyond the content of Differential and Integral Calculus are normally required of each candidate entering the Master's program. A one-year course in Advanced Calculus and a one-year course in Linear Algebra are desirable.

The Program

The University of Massachusetts at Boston provides low-cost, high-quality post-graduate training in mathematics for a wide variety of students, full-time and part-time.

While the program offers the opportunity for advancement in mathematical knowledge to all qualified students, it has three major objectives:

a) to prepare students for graduate work in pure mathematics at the doctoral level.
b) to provide the professional qualifications needed for teaching mathematics up to the two-year college level. In this connection, the opportunity is available for students to combine graduate courses in mathematics with the existing Teacher Certification Program.

c) to offer the opportunity for professional advancement to teachers already in service.

In order to maximize the accessibility of the rogram all graduate courses are scheduled in ıe late afternoon and evening.

)egree Requirements

To earn a Master's Degree in Mathematics, a tudent must:

1. Pass 10 courses (30 credits) at least six of which must be numbered 700 or above, and which must include the courses 711 (Modern Algebra I), 721 (Complex Variable I), 723 (Real Variable I), and 725 (Topology I) or their equivalent. Math 701 (Advanced Linear Algebra) or its equivalent will be a requirement for students having less than one year of Linear Algebra. No more than 3 of the 10 courses counted toward the Master's Degree may be taken outside the department. They must be graduate courses and two must be related to Mathematics. With the approval of the department 3 credits, substituting for one of the elective courses, may be earned by participating in a Graduate Seminar which will involve independent reading and expository work both oral and written.
2. Pass the Master's Written Qualifying Exam. This exam consists of two parts each of which lasts two hours, one part covering algebra and topology, and the other, analysis. Knowledge of the material through the level of 711, 721, 723 and 725 should be sufficient to enable the student to pass the exam.

711 Introduction to Modern Algebra I
First semester of a two semester course. Topics o be selected from groups, rings, algebras, ields, modules. Linear transformations, ma- rices, tensor products. Homological algebra. Prerequisite: Math 360 or Math 450 or equiva- ent.
3 Lect Hrs 3 Credits
Staff

712 Introduction to Modern Algebra II
Second semester of a two semester course. Topics to be selected from groups, rings, alge- ›ras, fields, modules. Linear transformations, matrices, tensor products. Homological alge- ›ra.
Prerequisite: Math 711 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

721 Theory of Functions of a Complex Variable I
First semester of a two semester course. Topics to be selected from linear transformations of a complex variable. Power series and elementary functions. Holomorphic functions and Cauchy's theorem. Theory of residues, isolated singularities, conformal mappings. Entire and meromorphic functions and their representations by means of products and partial fractions. Elliptic functions, analytic continuation and Riemann surfaces, algebraic functions.
Prerequisite: Math 450 or equivalent.
3 Lect Hrs 3 Credits
Staff

722 Theory of Functions of a Complex Variable II
Second semester of a two semester course. Topics to be selected from linear transformations of a complex variable. Power series and elementary functions. Holomorphic functions and Cauchy's theorem. Theory of residues, isolated singularities, conformal mappings. Entire and meromorphic functions and their representations by means of products and partial fractions. Elliptic functions. Analytic continuation and Riemann surfaces. Algebraic functions.
Prerequisite: Math 721 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

723 Theory of Functions of a Real Variable I
First semester of a two semester course. Topics to be selected from the real number system. Lebesgue measure and the Lebesgue integral. Differentiation. Classical banach spaces. General measure and integration theory.
Prerequisite: Math 450 or equivalent.
3 Lect Hrs 3 Credits
Staff

724 Theory of Functions of a Real Variable II
Second semester of a two semester course. Topics to be selected from the real number system. Lebesgue measure and the Lebesgue integral. Differentiation. Classic Banach spaces. General measure and integration theory.
Prerequisite: Math 723 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

725 Topology I
First semester of a two semester course. Topics to be selected from: topological spaces. Classification. Separation properties. Cartesian products. Mapping and continuity. Connectedness. General convergence. Compactness. Function spaces. Introduction to homotopy theory. Algebraic topology.
3 Lect Hrs 3 Credits
Staff

726 Topology II
Second semester of a two semester course. Topics to be selected from topological spaces. Classification. Separation properties. Cartesian products. Mapping and continuity. Connectedness. General convergence. Compactness. Function spaces. Introduction to homotopy theory. Algebraic topology.
Prerequisite: Math 725 or permission of instructor.
3 Lect Hrs 3 Credits
Staff

727 Differentiable Manifolds I
First semester of a two semester course. Topics to be selected from: differentiable manifolds, tangent spaces, tangent bundles, flows and vector fields, lie derivatives, differential forms. Generalizations of line and surface integrals, divergence theorem and Stokes' theorem, Riemannian manifolds, Riemann surfaces, relationships to vector analysis and to differential geometry.
3 Lect Hrs 3 Credits
Staff
— Not offered every year —

728 Differentiable Manifolds II
Second semester of a two semester course. Topics to be selected from: differentiable manifolds, tangent spaces, tangent bundles, flows and vector fields, lie derivatives, differential forms. Generalizations of line and surface integrals, divergence theorem and Stokes' theorem, Riemannian manifolds, Riemann surfaces, relationships to vector analysis and to differential geometry.
Prerequisite: Math 727 or permission of instructor.
3 Lect Hrs 3 Credits
Staff
— Not offered every year —

729 Stochastic Processes I
Probability spaces, measures, random variables. Various modes of convergence, laws of large numbers and of the iterated logarithm. Central limit theorem, conditioning, martingales.
3 Lect Hrs 3 Credits
Staff
— Not offered every year —

730 Stochastic Process II
Processes with independent increments, Markov chains, stationary processes, continuous parameter Markov chains, diffusion processes. Sample paths, separability, semigroups, boundaries.
Prerequisite: Math 729 or permission of instructor.
3 Lect Hrs 3 Credits
Staff
— Not offered every year —

731 Partial Differential Equations I
Hamilton-Jacobi theory for equations of first order, distributions, Fourier integrals of distributions, Sobolev spaces of distributions.
3 Lect Hrs 3 Credits
Staff
— Not offered every year —

732 Partial Differential Equations II
Elliptic equations, Garding's inequality, smoothness of solutions, solutions of the Dirichlet problem, hyperbolic equations. The Cauchy problem.
Prerequisite: Math 731 or permission of instructor.
3 Lect Hrs 3 Credits
Staff
— Not offered every year —

University Officers, Administration, Faculty

Resident Faculty

Rose Abendstern, B.A. (Hunter College), M.A., Ph.D. (Bryn Mawr College), Assistant Professor of French

Feroz Ahmad, B.A. (St. Stephen's College, Delhi University), M.A., Ph.D. (London University), Associate Professor of History

Joseph S. Alper, B.A. (Harvard College), PH.D. (Yale University), Associate Professor of Chemistry

Marcelle Altieri, B.A., M.A. (Hunter College), Ph.D. (New York University), Assistant Professor of French

Ernest Altobello, B.A. (New York University), M.A., Ph.D. (Harvard University), Lecturer in Italian.

Jeanne Ambrose-Grillet, Diplôme d'Etudes Supérieures: C.A.P.E.S. (Ecole Pratique des Haute Etudes, Paris), Docteur En Linguistique (Sorbonne), Associate Professor of French

Hatimali Amiji, B.A. (University of London), M.A. (Princeton University), Assistant Professor of History

Martin Andic, A.B. (Dartmouth College), A.M., Ph.D. (Princeton University), Associate Professor of Philosophy

J.-P. Anselme , B.A. (St. Martial College), B.S. (Fordham University), Ph.D. (Polytechnic Institute of Brooklyn), Professor of Chemistry

Marvin M. Antonoff, B.S., M.A. (New York University), Ph.D. (Cornell University), Associate Professor of Physics

John Anzalone, B.A. (University of Massachusetts at Boston), M.A., Ph.D. (Tufts University), Assistant Professor of French

Denise Annette-Ashley Gordon, B.A. (Gustavus Adolphus College), M.F.A. (Yale School of Drama), Lecturer in Theatre Arts

Renee M. Arb, B.S., M.A., Ph.D. (Radcliffe College), Associate Professor of Art

Bernice Auslander, B.A. (Barnard College), M.S. (University of Chicago), Ph.D. (University of Michigan), Associate Professor of Mathematics

Barbara G. Ausubel, B.A. (Brooklyn College), M.F.A. (Boston University), Lecturer in Theatre Arts

Barbara Ayres, B.A. (Coe College), M.A. (University of North Carolina), Ph.D. (Harvard-Radcliffe), Associate Professor of Anthropology

Alfonso Azpeitia, M.S., Ph.D. (University of Madrid), Professor of Mathematics

Donald Babcock, B.S. (U.S. Naval Academy), M.A., Ph.D. (Stanford University), Associate Professor of English

Efrain Barradas, B.A. (Universidad de Puerto Rico), M.A. (Princeton University), Instructor in Spanish

Ros Barron, B.F.A. (Massachusetts College of Art), Associate Professor of Art

Melvin Barton, B.A., M.A. (City College of New York), Ph.D. (Clark University), Visiting Assistant Professor of Psychology

Marta Batmasian, B.A. (Emerson College), M.A. (Brandeis University), Lecturer in Armenian

Kamaljit Bawa, B.A., M.S., Ph.D. (Punjab University), Associate Professor of Biology

Paul E. Beard, B.A. (University of Michigan), M.I.A., Ph.D. (Columbia University), Assistant Professor of Political Science

Ernest I. Becker, B.S. in Pharmacy, Ph.D. (Western Reserve University), Professor of Chemistry

Ruth Bennett, B.S., Ph.D. (Tufts University), Associate Professor of Biology

Stuart F. Berde, B.A. (University of Minnesota), Ph.D. (University of Pennsylvania), Assistant Professor of Anthropology

Edward Berkowitz, A.B. (Princeton University), M.A., Ph.D. (Northwestern University), Assistant Professor of History

Marvin Berkowitz, B.A. (State University

f New York at Buffalo), M.A., Ph.D. (Wayne tate University), Lecturer in Psychology

Maya Berlina, M.A. (Leningrad State Uniersity, Leningrad, USSR), Lecturer in Rusian

Laurence D. Berman, A.B., M.A., Ph.D. Harvard University), Associate Professor of Music

Sara Bershtel, B.A. (Barnard College), M.A., Ph.D. (Harvard University), Assistant Professor of English

Ann Berthoff, B.A. (Cornell College), M.A. (Radcliffe College), Part-time Associate Professor of English

Sandra Bertman, B.A. (Vassar College), M.A. (Boston University), Lecturer in Psychology

Naomi Bishop, B.A., M.A., Ph.D. (Uniersity of California, Berkeley), Assistant Proessor of Anthropology

James E. Blackwell, B.A., M.A. (Case Western Reserve University), Ph.D. (Washington State University), Professor of Sociology

Joel Blair, B.A. (University of Texas), M.A., Ph.D. (Harvard University), Associate Professor of English

Augusto Blasi, M.A. (Loyola University of Chicago), Ph.D. (Washington University, St. Louis, Missouri), Assistant Professor of Psychology

Max Bluestone, B.N.S. (The College of the Holy Cross), M.A., Ph.D. (Harvard Univerity), Professor of English

Lawrence Blum, A.B. (Princeton Univerity), Ph.D. (Harvard University), Assistant Professor of Philosophy

Arthur Blumenthal, B.A. (University of Redlands, Redlands, California), M.S., Ph.D. (University of Washington), Lecturer in Psychology

Andrew Boelcskevy, B.A. (West Virginia University), M.A., Ph.D. (University of Pennsylvania), Assistant Professor of German

Ethan Bolker, A.B. (Harvard College), A.M., Ph.D. (Harvard University), Professor of Mathematics

Gunther Boroschek, M.A. (Cornell Uniersity), M.A., Ph.D. (Harvard University), Professor, Management Program, CPS

Charles Bowen, B.A. (University of Notre Dame), M.A. (Yale University), Ph.D. (Harvard University), Associate Professor of English

James P. Brady, A.B. (Dartmouth College), M.Crim., D. Crim. (University of California at Berkeley), Assistant Professor of Sociology

James Breedon, B.A. (Dartmouth College), B.D. (Union Theological Seminary), Ed.D. (Harvard University), Associate Professor, C.P.C.S.

James Brennan, A.B. (Providence College), M.A. (University of Dayton), Ph.D. (Kent State University), Associate Professor of Psychology

Harry Brill, B.A. (Brooklyn College), M.A., Ph.D. (University of California at Berkeley), Associate Professor of Sociology

Louis Brin, A.B. (Boston University), Part-time Lecturer in Sociology

Francis L. Broderick, LL.D., B.A. (Princeton University), M.A., Ph.D. (Harvard University), Commonwealth Professor of History

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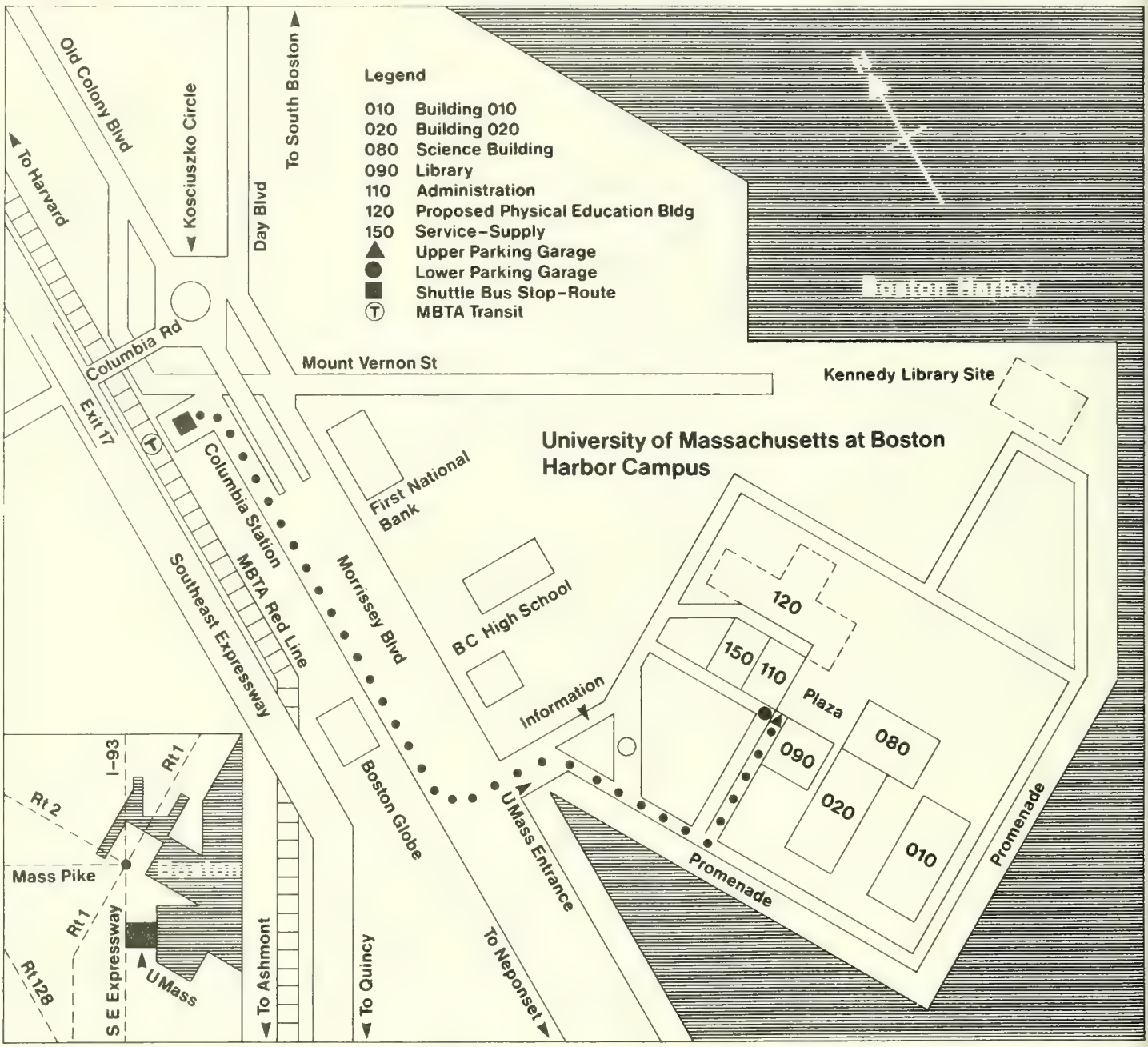

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Calendar 1978-1979

FIRST SEMESTER
1978

September 4	Monday	Holiday (Labor Day)
September 5	Tuesday	Add/Drop Period
September 6	Wednesday	Classes Begin
September 12	Tuesday	End of Add/Drop
October 9	Monday	Holiday (Columbus Day)
October 20	Friday	Mid Semester
October 20	Friday	Pass/Fail Deadline
November 3	Friday	Course Withdrawal Deadline
November 20-December 1	Monday-Friday	Advance Registration
November 23-November 26	Thursday-Sunday	Thanksgiving Recess
November 27	Monday	Classes Resume
December 8	Friday	Classes End
December 9-December 13	Saturday-Wednesday	Reading Period
December 14-December 21	Thursday-Thursday	Final Exam Period
December 22	Friday	Emergency make-up day in case of snow cancellation

SECOND SEMESTER
1979

January 19	Friday	Special Add/Drop Day
January 22	Monday	Classes Begin
January 26	Friday	Add/Drop Ends
February 19	Monday	Holiday (Washington's Birthday)
February 20	Tuesday	Monday's Schedule
March 9	Friday	Mid Semester
March 9	Friday	Pass/Fail Deadline
March 10-March 18	Saturday-Sunday	Spring Vacation
March 19	Monday	Classes Resume
March 23	Friday	Course Withdrawal Deadline
April 16	Monday	Holiday (Patriot's Day)
April 17-April 27	Tuesday-Friday	Advance Registration
May 1	Tuesday	Classes End
May 2-May 9	Wednesday-Wednesday	Reading Period
May 10-May 17	Thursday-Thursday	Final Exam Period
May 31	Thursday	Commencement

University of
Massachusetts
Boston

1978-1979
Medical School Catalogue
University of Massachusetts at Worcester

1978-1979
Medical School Catalogue
University of Massachusetts
at Worcester

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Foreword

HAVING GRADUATED FIVE CLASSES, having brought a full class of 100 students into the clinical years, and having opened its University Hospital successfully, the University of Massachusetts Medical School has entered into a major new phase in its development. The University Teaching Hospital brings with it concomitant opportunities for nursing and allied health professional education, making it possible for our faculty to plan more effectively for inter-disciplinary, inter-professional education, focusing on the development of a fully integrated health care delivery team. The medical school no longer stands alone; it is now a part of a developing academic health sciences center, which in turn implies further educational enrichment for our medical students.

As we work to bring the University Hospital to its full potential of over 400 tertiary care beds, we are increasing our efforts to enhance and strengthen our existing affiliations with the other teaching hospitals in the Worcester area and have in fact recently added new affiliations with major hospitals in Western and Southeastern Massachusetts. We know our students and residents need access to primary and secondary care, best acquired in community hospitals, as well as to the experiences and resources available through the University Hospital. Although we have the only Family Practice Residency Program in the state and have a special commitment to primary care, our major concern is to prepare our students to be first-rate physicians, whatever specialty they may choose.

We believe very strongly in a profession firmly rooted in the biomedical and behavioral sciences, tempered by a concern with and understanding of societal and human values. Our educational programs reflect these principles and we shall continue to emphasize them. We know, as a medical faculty, that our obligation includes the generation of new knowledge, both basic and applied, and that a failure to learn new things will only diminish the quality of the educational environment and experience of all our students. But, as a state institution, funded mostly by citizens' tax dollars, our faculty appreciates fully the need to direct the output of our efforts to meet societal goals, whether they be short-term or long-term. Thus, we think we have the chance to build the model new school of the 1970s and 1980s, an institution rooted in science but steered by the society which nurtures it. We look forward to this next phase with much excitement, enthusiasm and anticipation.

Roger J. Bulger, M.D.
Chancellor/Dean

Academic Year 1978-1979

Tuesday, September 5, 1978	*Registration and Orientation—All students*
Wednesday, September 6	*First day of classes—All students*
Monday, October 9	*Holiday—Columbus Day*
Wednesday, November 22	*Thanksgiving Recess begins after last class*
Monday, November 27	*Thanksgiving Recess ends, 8 a.m.*
Friday, December 15	*Christmas Recess begins after last class*
Tuesday, January 2, 1979	*Christmas Recess ends, 8 a.m.*
Monday, January 15	*Holiday—Martin Luther King Day*
Monday, January 22	*Payment of fees for second semester—All students*
Monday, February 19	*Holiday—George Washington's Birthday*
Saturday, March 3	*Spring Recess begins for third and fourth year students after last class*
Monday, March 12	*Spring Recess ends for third and fourth year students at 8 a.m.*
Friday, March 23	*Spring Recess begins for second year students after last class*
Friday, March 30	*Spring Recess begins for first year students after last class*
Monday, April 2	*Spring Recess ends for second year students, 8 a.m.*
Monday, April 9	*Spring Recess ends for first year students, 8 a.m.*
Monday, April 16	*Holiday—Patriot's Day*
Monday, May 28	*Holiday—Memorial Day*
Friday, June 1	*Last day of classes for second, third, and fourth year students*
Friday, June 8	*Last day of classes for first year students*
Saturday, June 2	*Commencement*

Rosh Hashana, October 2-3, 1978; Yom Kippur, October 11, 1978; Easter, April 15, 1979

OF MASSACHUSETTS MEDICA

General Information

The University System

The University of Massachusetts is the state university of the Commonwealth, founded in 1863 under provisions of the Morrill Land Grant Act.

The University is a member of the great community of Land Grant colleges and state universities serving the nation as principal resources of higher education. Incorporated as the Massachusetts Agricultural College in April, 1863, the institution was opened to a handful of students in 1867. Rooted in the liberal arts tradition (its early presidents were graduates of such colleges as Dartmouth, Williams, Amherst and Harvard), it has grown steadily from the four teachers and four wooden buildings available for its opening session. Reflecting the broadening interests of its students, the General Court of the Commonwealth of Massachusetts in 1931 authorized a second name, Massachusetts State College. Sixteen years later, in 1947, the institution became the University of Massachusetts.

The Amherst campus of the University consists of approximately 1,100 acres of land and 150 buildings, and enrollment there is approximately 23,000. A second campus was opened in 1965 in Boston, where enrollment is approximately 6,600. The Medical School at Worcester is the third campus of the University and the tenth division to offer programs of study leading to advanced degrees.

The Medical School

The Medical School was authorized by an act of the Massachusetts Legislature in 1962. In 1965 the decision was made to locate the School in Worcester. Subsequently, 126 acres of land on the eastern edge of the city, overlooking Lake Quinsigamond, were obtained for the School.

Sixteen students were admitted to the first class in September, 1970, and this hardy group became the first graduates of the School in May, 1974. Classes of 24 students each were admitted in 1971 and 1972. Forty students were admitted in 1973 and 64 in 1974. Beginning in 1975, all classes admitted numbered 100 students.

In October, 1973, the Medical School moved into the newly completed Basic and Clinical Sciences Building, located at 55 Lake Avenue, North. This large new building provides the superb physical facilities required to implement an academic program of the highest quality that is the ultimate goal of those who planned the School and the faculty who have been

recruited to develop the teaching program. With the availability of space in this building, the School has been able to recruit the additional faculty needed to provide the breadth and depth of expertise required in a modern medical curriculum.

Analysis of the academic qualifications of entering students has shown that the grade point averages and scores on the Medical College Admissions Test of the students are, on the average, at the national mean for entering medical students. It is gratifying that the present student body comes from more than fifty undergraduate colleges and universities, coast to coast.

Facilities

STUDENTS USED THE NEW Basic and Clinical Sciences Building for the first time in the fall of 1973. This large granite-faced building contains the Library, teaching and research laboratories and amphitheaters. Under construction for three years, this ten-story structure was the first of the new buildings which house the Medical Center to be opened for student use.

Completed at about the same time was the power plant. Constructed of black, anodized aluminum panels and solar gray glass and served by a 220-foot stack, this complex plant supplies the heat, steam and air conditioning to be used by the entire Medical Center.

Construction of the teaching hospital began in 1970. It opened for in-patients in 1976. The teaching hospital includes facilities to be used by other allied health professions, as well as for medical education.

The entire complex is planned and organized to function as a single, integrated health sciences facility with the main buildings inter-connected at every level. The Basic and Clinical Sciences Building is designed as an open-ended rectangle with basic sciences, clinical sciences and student laboratories, each occupying a separate wing. The library section of the building occupies the center court formed by the other three wings. At each level, departmental offices and laboratories in the clinical science wing will correspond, as nearly as possible, to the clinical service located on that floor of the hospital building.

Features of the Basic and Clinical Sciences Building of particular interest to students include: three amphitheaters one above the other, each with 175 seats and full audio-visual support; entry to each amphitheater is from two floors, enabling hospitalized patients to participate in clinical conferences; student locker rooms, lounges and a book store located in one area of the first floor convenient to the Library; the abundant opportunity for individual study in the numerous carrels of the Library; excellent facilities for small group conferences; and audio-visual facilities that permit the production of educational materials as well as the monitoring of educational programs.

Affiliated Hospitals

Hospitals throughout the Commonwealth have indicated interest in establishing formal relationships with the Medical School. Affiliation agreements have been signed in Worcester with St. Vincent Hospital (600 beds), Worcester City Hospital (448 beds), Worcester Memorial Hospital (379 beds), and Hahnemann Hospital (136 beds), and in Pittsfield the Berkshire Medical Center (414 beds). The Worcester State Hospital (1,009 beds) participates actively in the teaching of psychiatry during the third and fourth years of the curriculum. The affiliation agreements are sufficiently flexible to permit various degrees of affiliation between the clinical departments of the School and the corresponding services of the hospitals. In this way, the academic needs of students are met without compromising the primary commitment of the hospitals to patient care and without disturbing the relationship between physicians and their private patients. Appointments to the Medical School faculty of those members of various hospital staffs who are interested in teaching are made upon recommendation of the departmental chairman and approval by the faculty and Trustees of the University.

In addition to hospitals having formal affiliation with the School, some 14 others have contributed in a significant way to the implementation of the course in pathology during the second year. A few hospitals and medical groups offer opportunities for elective work to students in the School. As the student body expands in size and the need for additional opportunities for clinical experience increases, the School will continue to explore the possibility of meaningful affiliation with additional hospitals.

Requirements for Admission

SELECTION FOR ADMISSION is based upon careful appraisal of the applicant's overall potential for a career in medicine. Factors considered include both academic preparation and personal attributes such as motivation, maturity, character, and ability to work effectively with others. A minimum of three years of study at the college level is required and a baccalaureate degree is recommended.

The student planning a career in medicine should realize that an education of considerable breadth is required. In seeking to acquire in college a science background that is adequate preparation for medical school, the student should not forfeit the opportunity to become acquainted with the history, art, religion and literature that constitute the cultural heritage. On the other hand, the student majoring in the humanities should take enough courses in the physical and biological sciences to establish an ability to deal successfully with this aspect of the study of medicine. There is no single program of college study that can be recommended as the best, or, preferred, preparation for medical school; therefore, the course of study followed by each student should reflect individual interests and abilities. Applicants are encouraged to undertake advanced study in some field of special interest, in either the sciences or the humanities, including independent study, if possible.

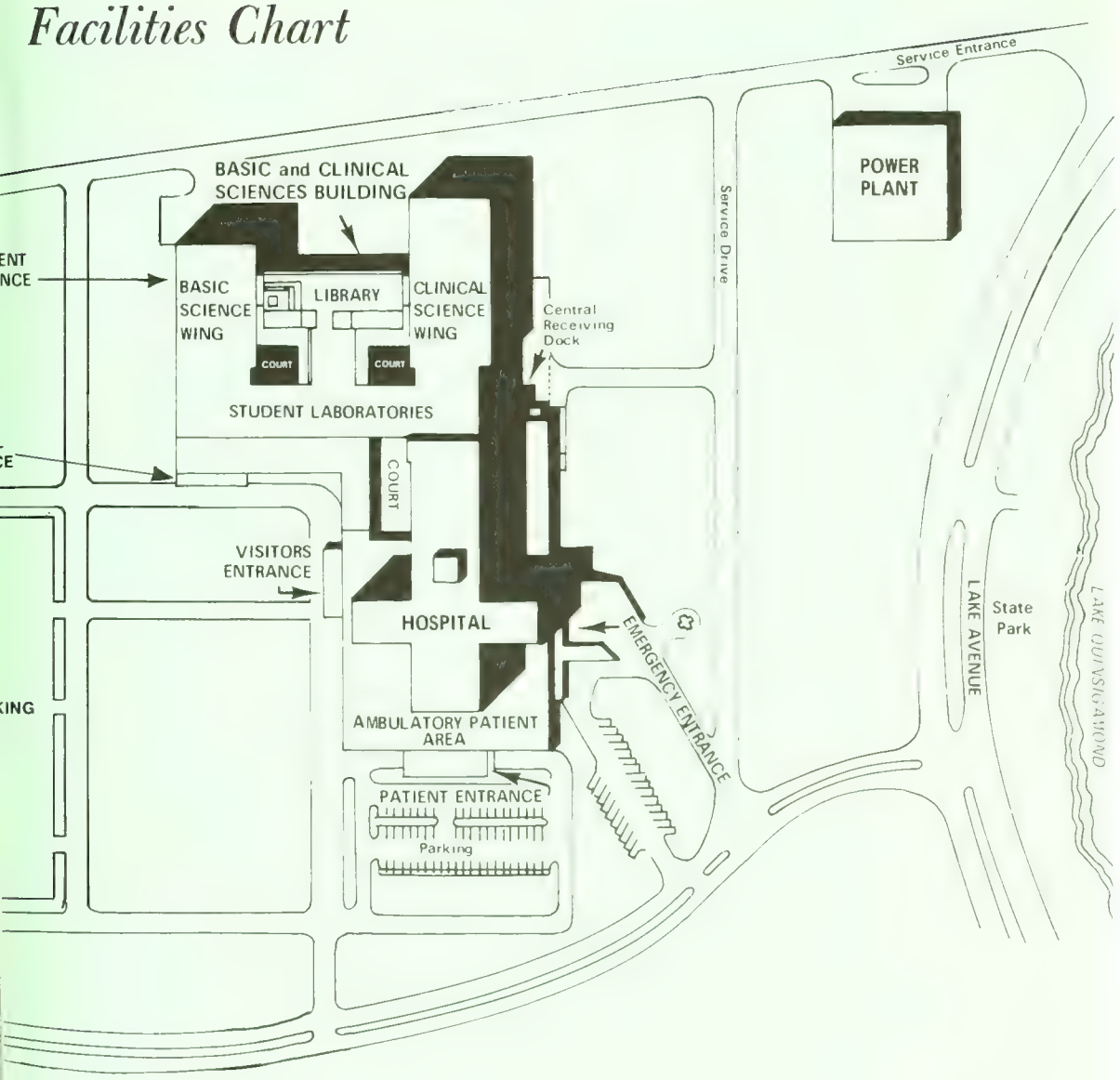
Described below are specific course requirements in four subject areas. It should be kept in mind that they represent the minimal acceptable preparation in each of these fields of study. Keeping the number of required courses small permits students greater latitude in the selection of undergraduate majors and enables those not selecting a science major to qualify for admission on an equal basis. A minimum of required courses is also in keeping with the educational philosophy of the School, as expressed in the description of the curriculum.

Biology—A one-year basic course in general biology or zoology is required. Students interested in additional courses should consider genetics, embryology, cell physiology or comparative anatomy.

Chemistry—One year each of inorganic and organic chemistry is required, including laboratory experience. Students interested in advanced courses should consider biochemistry or physical chemistry.

Physics—A one-year course in general physics is required. A student receiving advanced placement credit for a course taken in secondary school may wish to take an additional college-level course.

Facilities Chart



DOWNTOWN WORCESTER (2 Miles)

UNDER CONSTRUCTION

PLANNED

ROUTE 9 – BOSTON (42 Miles) →

N

English—At least one year of college-level study in English literature or composition is required. Much of the art of medicine involves competence in communication. The ability to read rapidly and with good comprehension is essential in dealing with the large volume of medical scientific literature; proficiency in writing clearly and concisely is highly desirable. Therefore, the applicant will be expected to have an adequate command of the English language.

Additional Recommended Courses—Because a knowledge of mathematics becomes increasingly important in the study of science, a course in calculus is recommended. The study of psychology and sociology will provide useful background for understanding human behavior in response to illness. An understanding of statistical methods is helpful in evaluating scientific data and some knowledge of economics is pertinent to study of the socio-economic aspects of medical care.

The prospective medical student is urged to consult the publication of the Association of American Medical Colleges entitled "Medical School Admission Requirements" which contains much helpful information concerning medical schools and preparation for the study of medicine. Copies of the book may be purchased from the Association at One Dupont Circle, N.W., Washington, D.C. 20036.

Applications

Application for admission to the University of Massachusetts Medical School must be made through the American Medical College Application Service (AMCAS). Applications are accepted between July 1 and December 1 of the year prior to admission. The deadline for completion of applications is February 15. A $10 application fee is required.

All applicants are required to take the new Medical College Admissions Test. Arrangements for taking the Medical College Admissions Test (MCAT), requesting test reports, and all other correspondence and requests for information concerning the administration, processing and scoring of the MCAT should be directed to:

Medical College Admissions Test, The American College Testing Program, P.O. Box 451, Iowa City, Iowa 52240, Phone: (319) 351-4470.

Admission Policy and Acceptance Procedures

The Admissions Committee will review all completed applications with supporting documents. Applications will be considered complete when all of the following have been received:

(a) The completed application form;

(b) Certified transcripts of applicant's grades from each college or university attended which are first sent to AMCAS for verification of the information on the application. As additional course work is completed, transcripts should be sent to the Medical School directly as long as application is still active;

(c) Letters of recommendation. The applicant is requested to have sent directly to the Medical School a letter of evaluation that is the official recommendation of the school's Premedical Advisory Committee. If such a letter, or form, is not provided by the applicant's school, letters must be supplied from two instructors, preferably in the prerequisite areas;

(d) MCAT scores. Applicants who do not take the MCAT by October of the year prior to admission will not be considered;

(e) A notarized application for classification as a Massachusetts resident. It is the policy of the Admissions Committee to consider only those applicants who are certified as legal residents of the Commonwealth of Massachusetts and citizens of the United States.

Receipt of the application form will be acknowledged promptly. Periodically thereafter, all applicants whose applications are not complete (see above) will be informed as to which documents have not been received. All required documents should be submitted as early as possible.

Completed applications will be reviewed by the Admissions Committee and personal interviews scheduled if the Committee believes these will be helpful. Interviews will be held at Worcester.

The School has agreed to participate with other schools of the Association of American Medical Colleges in employing a series of uniform acceptance dates from December through March. Thereafter the Admissions Committee will employ a "rolling" admissions policy. Applicants selected for admission will be so notified, and will normally be expected to accept or reject a place in the class within two weeks. In exceptional circumstances, applicants may be granted an additional two weeks to make a decision.

When all places in the class entering in September have been filled, remaining applicants will be so notified. However, a list of alternates will be prepared and should any of the enrolled students withdraw prior to the opening of school, replacements will be selected from the list of alternates. Applicants selected as alternates will be informed of this and requested to indicate whether or not they wish to have their names remain on the list.

No deposit is required of those applicants who are offered and accept a place in the entering class. However, anyone who accepts a place and later

decides to withdraw will be expected to inform the Office of Admissions immediately in order that another applicant may be accepted.

All supporting documents and correspondence should be mailed to: Office of Admissions, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, Massachusetts 01605.

Evaluation of Applicants

The Admissions Committee is composed of faculty members representing several different scientific disciplines from the basic and clinical sciences. It is the responsibility of the Committee to recommend applicants to the Dean for acceptance. Every application for admission and all information provided by, or on behalf of, the applicant is carefully evaluated by the Committee as it endeavors to select those who possess exceptional personal qualifications as well as the intellectual ability and academic preparation necessary for the successful study of medicine. There is no discrimination against any applicant because of age, race, religious belief, sex or political affiliation. The University of Massachusetts Medical Center is an equal opportunity affirmative action employer. The University of Massachusetts Medical School will take positive steps in recruiting minority and women candidates, will consider all applicants and once accepted, will assure that

they will not be discriminated against in any area.

Letters of recommendation are required and those from Premedical Advisory Committees, or their equivalent, are preferred. When these are not available, the applicant must request letters of recommendation from two or more college instructors who will give the Committee a personal evaluation of the applicant.

The decision to interview certain applicants rests with the Admissions Committee. It is not possible for the Committee to interview all applicants. Those invited for interviews are those deemed by the Committee as not only qualified for admission but also likely to be competitive for a place in the class. The interview offers an opportunity for exchange of information between Committee and applicant, and allows the latter to see the School, sense the atmosphere for learning and to meet and talk with students. For these reasons, all interviews are held at the Medical School except in the instance of students in schools out of state who find the cost or inconvenience of coming to Worcester to be burdensome. For such students, other arrangements will be made upon request.

Each year since the School opened, the task of selecting a class has become increasingly difficult. The number of applicants has increased steadily from approximately 300 for the first class to an anticipated 100 for the class that enters in September, 1978. Although the size of the entering class has also been enlarged, the number of seemingly well-qualified applicants has increased at a much faster rate, resulting in intense competition for the available places in the class.

Transfers and Advanced Standings

To date, it has been possible to accept transfer students, with advanced standing only, to fill the few vacancies that have occurred as the result of withdrawal from school of previously enrolled students. Although it is anticipated that this policy will continue in effect, the matter will receive annual review by the faculty. Therefore, students interested in the possibility of transferring to this School should direct their inquiries to the Office of Admissions. Information regarding current policy on transfers and, when appropriate, application forms and instructions for applying will be sent to all potential applicants. It should be noted that the same residency requirements must be met as for students entering the first year.

Students wishing to receive advanced standing on the basis of study undertaken in a foreign medical school (other than Canadian schools) must register with the COTRANS Office of the Association of American Medical Colleges. That office will arrange for qualified applicants to take the basic science examinations of the National Board of Medical Examiners. Scores on

these examinations will be taken into consideration in evaluating all such applicants for transfer with advanced standing.

Candidates for transfer from U.S. schools must have met the conditions of admission of the first-year class at the University of Massachusetts Medical School and must present evidence of good standing from the school they are attending. They may, at the discretion of the faculty, be required to take examinations in any of the courses taken at another school.

Expenses and Fees

THE MAJOR EXPENSES not listed below are those for meals, rooms, and customary living expenses. The University-operated dining facilities are available. The cost of room and board can vary from student to student. It is probably wise to allow $750 to $900 for meals and $700 to $1000 for individual accommodations, per academic year. The cost of apartments for married students is somewhat greater.

Fees and other expenses that can be anticipated are:

Application Fee	$ 10
Acceptance Deposit	(None)

*Tuition—Massachusetts Residents**	$900
*Microscope Charge***	$ 35
*Books, Instruments and Supplies including Laboratory Coats (estimated)****	$250
*Student Health Fee*****	$100

*In order to register as a Massachusetts resident, a student must have on file in the Office of Admissions a notarized application for classification as a Massachusetts student. Only Massachusetts residents will be accepted for 1978-1979.

**A microscope for each student is provided by the School. A charge is made for upkeep and repair of these instruments. Students wishing to purchase their own microscopes may do so, but should consult the Department of Anatomy regarding approved models.

***Average expense for first three years; expenses of the fourth year should be somewhat less.

****Optional medical-surgical insurance is available. Specific costs may be obtained yearly from the Student Health Service.

Financial Assistance

THE FACULTY AND ADMINISTRATIVE OFFICERS of the School are well aware that a substantial number of students each year will find the expense of obtaining a medical education burdensome. Even during the short time the School has been open, there has been a significant increase in the general cost of living. Unfortunately, at the same time, it has become increasingly uncertain as to what sources of financial aid will be available to the School, and in what amounts. The principal problem is the uncertain future of the financial aid programs administered by the United States Department of Health, Education and Welfare.

Possible new sources of funds are constantly being explored by the School and every effort is made to obtain money for scholarships and loans. However, applicants who anticipate needing financial assistance are urged to seek out private sources of assistance that may be available to them as individuals. In some communities fraternal orders, civic groups, churches, medical societies and other organizations offer assistance to students. Also, the majority of savings and loan banks participate in the federally insured Higher Education Loan Program which is available to graduate students.

Scholarships

THE FOLLOWING LIST indicates the sources of scholarship money available through the School:

WOMEN'S AUXILIARY OF THE WORCESTER DISTRICT MEDICAL SOCIETY—Funds for this scholarship are contributed by members of the Auxiliary. It is awarded annually and although the Auxiliary has placed no restrictions on eligibility, it has been customary to award the scholarship to a woman.

AMERICAN MEDICAL ASSOCIATION, EDUCATION AND RESEARCH FUND—Each year the School receives a variable sum of money from this fund. The amount reflects nationwide contributions by physicians and, in particular, those contributions given specifically for this medical school. Use of this money is not restricted by the donors, however, the Chancellor/Dean and faculty have elected to allocate the entire amount to scholarships. At present, the money received from this source is second in amount only to that received from the University for scholarships.

EDMUND AND PHYLLIS CROCE SCHOLARSHIP—One or two scholarships awarded yearly from funds contributed by the Croces. There are no specific requirements for the scholarship.

The major source of scholarship funds is the University of Massachusetts.

Loans

Health Professions Student Loan Fund—The School has participated with the Department of Health, Education and Welfare in establishing a Health Professions Student Loan Fund. Interest is not charged until three years after graduation and then is assessed at the rate of 7% annually. Repayment of the loans is made over a ten-year period beginning three years after graduation from medical school. Loans are to be made to critically needy students.

National Direct Student Loan Fund—This fund, also administered by the Department of Health, Education and Welfare, was made available to health professions students effective in academic 1976-77. With the termination of the Health Professions Scholarship Program and the altering of eligibility requirements for the Health Professions Loan Program, the National Direct Student Loan Program has become our largest source of aid. The interest is not charged until nine months after graduation and is then assessed at 3%.

Massachusetts Medical Society Loan Fund—Through the Directors of the Charitable and Educational Fund, the Society annually sets aside a sum of money to be available as loans to students at this School. After review of all applications for financial assistance, the Financial Aid Committee refers some students to the Treasurer of the Society who handles the details for obtaining a loan. Loans bear an interest rate of 1%, not compounded, for five years. The terms provide the option to extend the period of the loan an additional five years upon request of the student and agreement of Directors of the Fund.

Worcester District Medical Society Loan Fund—The Worcester District Medical Society, through contributions of its member physicians, has established a loan program which aids a significant number of students annually. The student pays no interest during the first year of the loan, and one-half of the interest in each succeeding year. Students are expected to be residents of Worcester County and the recipients chosen by the Committee are spread among each of the four classes.

Procedure

Formal application for financial assistance from the School is not filed until after the applicant has received a letter of acceptance from the Dean. This letter requests the applicant who is accepting a place in the class to indicate whether he or she wishes to apply for financial aid. Forms and instructions for this purpose are then mailed to the student. Since the Financial Aid Committee makes recommendations regarding both scholarships and loans, only one application form is necessary. In general,

students with the greatest financial need will receive a combination of scholarship and loan assistance, while those with lesser need will receive loans only.

All persons applying for financial aid from the Medical School *must* also apply to the Massachusetts Board of Higher Education for a scholarship to be considered as bona fide applicants for assistance by the Financial Aid Committee. Application forms and instructions may be obtained at the Financial Aid Office of most colleges in Massachusetts, including the Medical School, or by writing to the Scholarship Office, Commonwealth of Massachusetts, Board of Higher Education, 182 Tremont Street, Boston, Massachusetts 02111. Attention is called to the deadline for filing applications with the Board of Higher Education and the fact that the applicant need not be accepted into medical school before applying.

All applicants who apply for financial aid will be asked to prepare confidential financial statements submitted to an outside agency for analysis and used in support of the application for aid. All applications for financial assistance will be evaluated by the Financial Aid Committee and awards are made on the basis of relative financial need. Although the Committee will act on applications as soon as possible each year, it may be late summer before the Committee has adequate information as to the monies available for distribution.

Learning Contract

The Massachusetts Legislature has required the University Board of Trustees to enter into a learning contract with each student accepted for admission in September, 1978. Under the learning contract, each student agrees to provide either one year service in the Commonwealth of Massachusetts or to repay $2,000 per year of study, with the total not to exceed $8,000. These limits have been set by the Board of Trustees.

The one full year of service must begin two years following completion of internship and residency, or one year following completion of service obligations resulting from governmentally sponsored loan programs. This service may be in practice, research, teaching or administration consistent with the student's training and approved by the Chancellor/Dean of the Medical School. The service may be at any location within the Commonwealth.

The monetary payback will be $2,000 for each year during which the student attended the University of Massachusetts Medical School. The maximum obligation will not exceed $8,000 interest free. Payment shall begin within two years of completion of internship and residency at a minimum annual payment of $800 for a period of up to ten years.

Student Facilities

THE DESIGN OF THE BASIC and Clinical Sciences Building places most of the student areas together on the first floor at the north end of the basic science wing. One large room serves as a student lounge and recreation area. Immediately adjacent are the student book store, locker rooms and the mail room which provides locked mail boxes for each student. Although present athletic facilities are limited to an exercise room, volley ball and basketball, facilities will be added in the Spring of 1978. Shared use of athletic facilities by students is available at other colleges in the Worcester area.

The entrance to the Library is on the first floor, a short distance from both the student area and the main entrance of the building. Student laboratories are located in the east-west wing of the building above the first floor. The Library, student laboratories, and other student areas are open at night for students who wish to study and work in the building.

Housing and Transportation

THE SCHOOL has limited on-campus facilities for housing single and married students, and these are assigned on a first-come, first-serve basis. Most students find housing in the local community. Information about possible accommodations may be found on file in the Medical Center Housing Office and is available for students' review. Students are then expected to make their own arrangements.

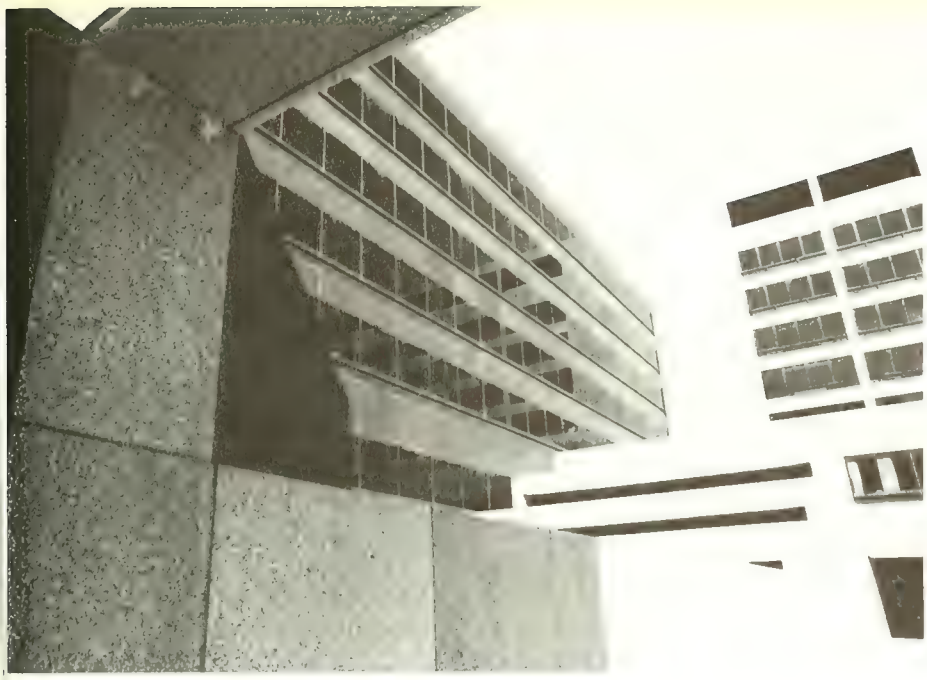
Bus transportation to the campus is possible on several different routes. From some locations, however, students may find it desirable to commute by private automobile. Those who wish to park at the School are required to obtain a parking permit from the Physical Plant Office. Currently, there is no charge for parking.

Food Service

THE DESIGN of the Medical Center places all food service facilities in the hospital building. The main cafeteria and dining room is located on the first floor of the hospital with easy access from the clinical wing entrance. Breakfast, lunch and dinner are served every day including weekends and holidays. The selective menu items are priced individually to allow for individual choices. Prices are based upon food and labor costs which support the service.

HOURS OF SERVICE

	Weekdays	*Weekends*
Breakfast	7:15 a.m.— 9 a.m.	8:15 a.m.—10 a.m.
Coffee Hour	9 a.m.—10:30 a.m.	
Lunch	11:30 a.m.— 1:30 p.m.	11:30 a.m.— 1:15 p.m.
Dinner	5 p.m.— 6:30 p.m.	5:30 p.m.— 6:30 p.m.



Advising and Counseling

Students are assigned faculty and student peer advisors when they enter the school and these advisors are available to them throughout their medical training. During the third year, students also select a clinical advisor who is responsible for helping the student plan an elective program as well as advise on postgraduate plans.

In addition to these advisors, counseling about academic, personal and career problems is available to students through the Office of Student Affairs and the Student Counseling Service.

Student Health Service

The University of Massachusetts Medical School Student Health Plan provides a system of health care for both students and dependents. It meets both ambulatory and in-patient hospital needs utilizing the out-patient and in-patient facilities at the University of Massachusetts Hospital. The student health fee provides for out-patient services for the student and dependents, to include all laboratory tests and consultations performed within the hospital complex. In-patient services are provided through purchase of an optional policy purchased through the University of Massachusetts Medical School.

The Curriculum

THE YEARS OF STUDY in medical school are looked upon as the middle period in a continuum of formal education that begins with entry into college and extends through the years of graduate study and specialty training. During these early years, the student should cultivate those attitudes and habits that will enable him or her, as a physician, to keep his or her knowledge current throughout his or her career. In an era of rapidly expanding information relevant to the sciences basic to medicine, the burden of keeping informed falls squarely upon the individual physician and his or her success at this depends upon mastering the process of sustained self-education. It is sobering to realize that appropriate methods of diagnosis and treatment are, to a substantial degree, replaced by more effective methods in every decade.

Because of the need to acquire the tools of self-education, a significant portion of the curriculum for each student at the University of Massachusetts Medical School will be planned and implemented by the student. The faculty will offer guidance in making these plans and supervision will be provided to whatever extent necessary. At the same time, it is recognized that there is a body of knowledge and skills that is fundamental to an understanding of health and disease and is applicable to almost all areas of medical practice. Some courses will, therefore, be required of all students. Thus, the curriculum is designed to provide a sound basis for proceeding into any of the many careers open to physicians and each student will be offered the opportunity to select particular areas of medical science for study in depth. Periods of elective time for this purpose are provided in the schedule.

It is considered essential that the plan of study also contain free, unscheduled time which each student is expected to utilize to his or her own benefit. Laboratories and the Library will be available during this time, as will nearby facilities for recreation.

Plan of Study *(All Departments)*

First Year

FALL

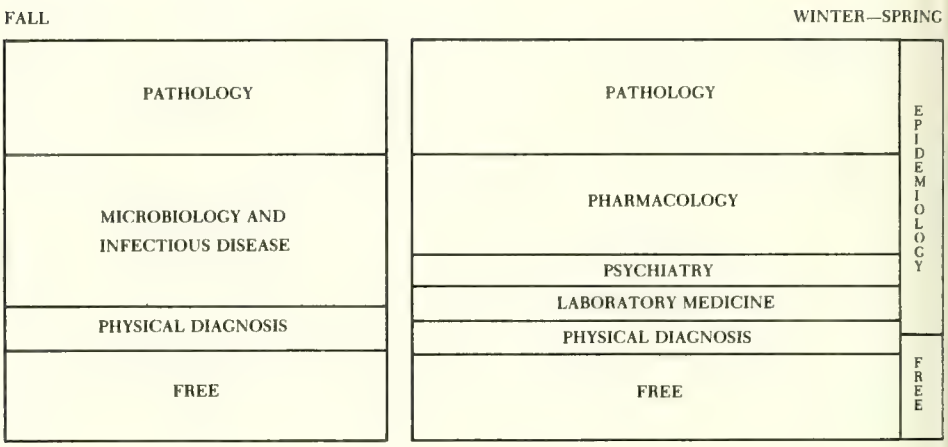
ANATOMY
BIOCHEMISTRY
INTRODUCTION TO PATIENT CARE
FREE

WINTER—SPRING

FAMILY & COMMUNITY MEDICINE / FIELD CLERKSHIP	ANATOMY
	PHYSIOLOGY
	INTRODUCTION TO PATIENT CARE
	GENETICS
	FREE

THE BULK OF THE FIRST YEAR is devoted to the study of normal structure and function of cells, tissues and organs. Two days a week for the first 15 weeks are devoted to anatomy, and two to biochemistry. A series of lectures, discussions and practical exercises, dealing with fundamental aspects of personality development, medical ethics, physical diagnosis, interviewing techniques, primary care medicine, and emergency medicine is presented in the course, "Introduction to Patient Care." There is a three-week field project in Family and Community Medicine immediately following the Christmas recess. For the next 19 weeks anatomy is presented in conjunction with physiology.

Second Year



During the second year emphasis is placed on physical abnormalities, pathological processes and the development of diseased states. An attempt is made to correlate the subject matter in the courses being taught simultaneously. Psychiatry and physical diagnosis are assigned time each week throughout the year. The course in physical diagnosis introduces the student to clinical medicine. Emphasis is on the doctor-patient relationship and on acquiring skill in obtaining the medical history and performing the physical examination. Teaching is done at the several hospitals in Worcester, much of it at the bedside. During the spring, epidemiology of disease is taken up by the Department of Family and Community Medicine.

Third and Fourth Years

The last two years of the curriculum are planned as a unit beginning with a series of clinical clerkships and include a series of basic science and/or clinical electives. In the third year the class is divided into small groups of approximately four students. Each group is assigned to a clinical service at the University hospital or an affiliated hospital where it participates in the day-to-day care of patients as part of a team whose other members include interns, residents and attending physicians. Instruction in such fields as radiology, anesthesiology, and the sub-specialties of medicine and surgery takes place in conjunction with other in-hospital activities. The total clinical experience in most fields includes the care of both hospitalized and ambulatory patients. The continuing program in Family and Community Medicine includes the opportunity to work with practicing physicians in various communities and students come to know the role of the family

physician and his or her relationship to other specialists. Such assignments offer each student the opportunity to make an initial appraisal of the health needs of society and to decide how he or she can best contribute to meeting those needs.

During the final six months of the curriculum, each student is expected to select for intensive study a field that holds special interest for him or her. With the guidance and counseling of members of the faculty, he or she plans a balanced program of study, combining work in both basic science and clinical departments, as appropriate to his or her particular field of interest. The possibilities for elective work include an extended clinical experience in hospital and clinic, work in a clinical or basic science laboratory, library research, preceptorial association with a physician in private practice, work with a Department of Health or community health agency, or study at another medical center. It is the intent of the faculty to allow each student considerable latitude in planning his or her elective activities, but in each instance it is necessary to obtain faculty approval for the program of study proposed. Those responsible for the supervision of each student submit reports on the nature and quality of the work performed.

Grading System

THE FACULTY believes that some system of periodic evaluation is essential to enable students to identify their deficiencies and misconceptions and to permit instructors to evaluate student progress as well as their teaching efforts. Through frequent and intimate contact with students, the faculty will seek to identify early any difficulty a student may be having in understanding a topic and will advise him or her regarding such problems, for it is the intent of the faculty that all students admitted shall successfully complete their course of study.

The School's philosophy of emphasizing learning as the result of personal initiative is reflected in its pass-fail system of grading. Evaluation is based upon student performance in laboratory, conferences and seminars, classroom discussion and on written examinations. Individual departments may use a variety of mechanisms to evaluate student performance, including grades, and may give this information to individual students, on a confidential basis. However, the report turned in to the Registrar by each department merely indicates a mark of pass or fail for each student, plus a narrative comment about the quality of the student's work. To date, faculty and students have preferred not to include an "honors" grade in the system.

After careful consideration, it has been decided not to require students to take the examinations of the National Board of Medical Examiners, although it is anticipated that most students will elect this method of examination for purposes of subsequent licensure.

Promotion and Graduation Policy

STUDENTS MUST PASS all required courses and the required number of elective courses in order to qualify for graduation from Medical School. It is the responsibility of each Course Coordinator to notify promptly any student in academic difficulty and to inform the Associate Dean for Academic Affairs of the difficulty, with a recommendation for remedial action.

Promotion from the first year to the second year and from the second year to the third year of the medical curriculum will be determined by a Promotions Board for each year, the voting members of which will consist of the Course Coordinator and another faculty member representing each required course in that phase of the curriculum. Each committee will meet promptly at the end of the fall term and at the end of the academic year. Additional meetings may be held at any time as need arises. The predominantly clinical curriculum of the third and fourth years is treated as a continuum. Qualification for graduation will be determined by a Clinical Promotions Board, the voting members of which will consist of the Course Coordinator and another faculty member representing each required clinical clerkship. In addition to meeting near the end of the fourth academic year to make decisions concerning graduation, the Clinical Promotions Board will meet at the end of the third academic year to review student progress and recommend remedial action in cases of academic difficulty. Additional meetings may be called any time as needed.

It is the responsibility of the Associate Dean for Academic Affairs to notify promptly any student whose academic difficulties will be reviewed at a meeting of the Promotions Board, so that the student may provide additional information and appear at the meeting in person, if he or she chooses.

In the event of unsatisfactory work in any course, the appropriate Promotions Board will determine the course of action a student must follow to qualify for promotion or graduation.

A student receiving a failing grade in two major courses during a single academic year is subject to dismissal. In addition, repeated failure to pass one major course also constitutes grounds for dismissal. Furthermore, a student may be dismissed if he or she demonstrates qualities of character or personality which are incompatible with a career as a physician. Decisions relative to dismissal are made by the Dean, upon advice of the appropriate Promotions Board, and once dismissal has occurred, readmission requires positive action by the Admissions Committee of the Medical School.

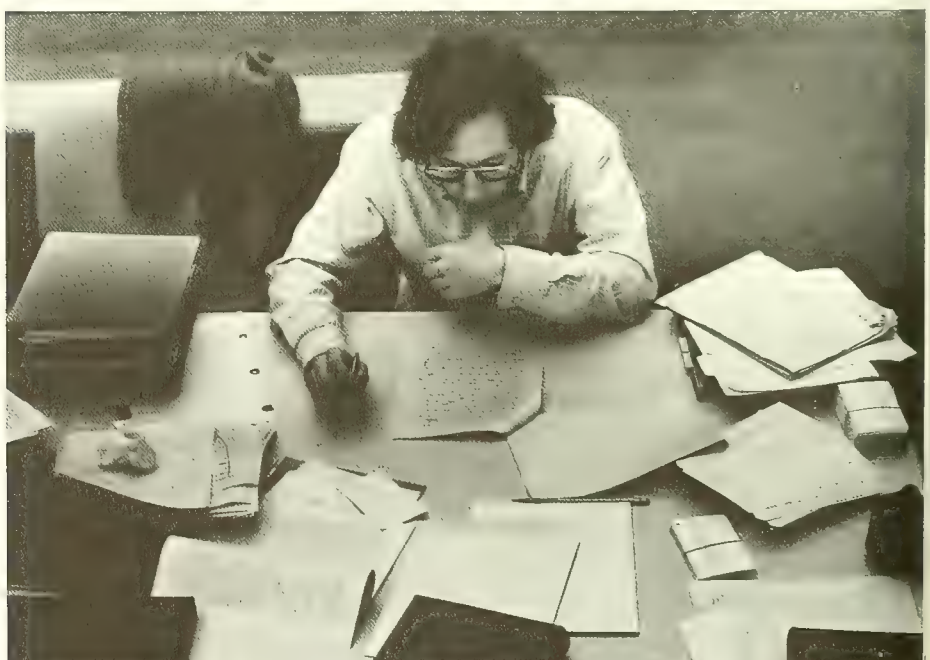
A student may withdraw voluntarily from Medical School at any time upon written application to the Dean. However, this does not guarantee

readmission to Medical School. Application for reinstatement must be received in writing at least two months prior to the date of requested readmission and must be approved by the Admissions Committee. The level of reinstatement within the curriculum will be determined by the appropriate Promotions Board.

A student in good academic standing may, at any time, request a leave of absence for a specified period of time not to exceed one year. The appropriate Promotions Board will determine whether or not such a leave of absence is to be granted and what, if any, conditions for readmission will be set. No other conditions for readmission may be imposed at a later date.

A student who fails to attend Medical School regularly or fails to return from a leave of absence, in spite of notification by the Associate Dean for Academic Affairs, will be considered to have withdrawn voluntarily from Medical School and cannot be reinstated without positive action of the Admissions Committee.

A regularly matriculated medical student having satisfactorily completed four years of study of not less than 32 weeks each and having fulfilled all other requirements of the University, as certified by action of the Clinical Promotions Board, will be recommended by the Dean to the President and Trustees of the University of Massachusetts for the degree of Doctor of Medicine.



Areas of Study

Department of Anesthesia

Department of Anatomy

Department of Biochemistry

Department of Family and Community Medicine

Department of Medicine
- *Cardiology Section*
- *Dermatology Section*
- *Endocrinology Section*
- *Gastroenterology Section*
- *Hematology Section*
- *Immunology and Rheumatology Section*
- *Infectious Disease Section*
- *Medical Oncology Section*
- *Pulmonary Medicine Section*
- *Renal Medicine Section*

Department of Microbiology

Department of Neurology

Department of Nuclear Medicine

Department of Obstetrics and Gynecology

Department of Ophthalmology

Department of Orthopedics

Department of Pathology

Department of Pediatrics

Department of Pharmacology

Department of Physiology

Department of Psychiatry

Department of Radiology

Department of Surgery
- *Department of Otolaryngology*
- *Department of Plastic Surgery*
- *Department of Urology*

Department of Anaesthesia

Professor and Chairman: M. Stanton-Hicks

Professors: B. G. Covino, B. E. Waud

Associate Professors: R. A. Boas, R. G. Jacobs, R. D. Ouellette, A. S. Selwyn, A. Shepard

Assistant Professors: J. E. Bruce, R. M. Giasi, G. Longnecker, B. L. Perks, L. E. Peterson, T. Rusz, M. Shirley, G. F. Troll, C. Vassallo, G. Welch

Associate: R. Aillon

Instructors: P. Daoust, D. G. Littlewood, W. M. Noble, D. P. Rajadhyaksha

A ROTATION THROUGH THE DEPARTMENT OF ANESTHESIA provides the student first of all with the excitement of practical experience in the fundamentals of resuscitative skills (maintaining airways, ventilation by mask, use of laryngoscopes, endotracheal intubation, setting up intravenous infusions). In addition, he or she will be able to observe the effect of a wide variety of drugs, observe monitoring equipment and ventilators.

The student will be exposed to a variety of anesthetic techniques, including such specialized ones as controlled hypotension, and cardiopulmonary bypass, and a whole range of regional anesthesia, including spinals, epidurals, i.v. regional, brachial plexus blocks, etc. The Pain Clinic will provide an insight into a management of pain problems.

Apart from a great deal of teaching in the operating room into areas of applied pharmacology, physiology, anatomy and anesthesia fluid and electrolytes, blood transfusions, etc., the student will have an opportunity to attend I.C.U. rounds and premedication rounds. Lecture/seminars will be given each week.

Department of Anatomy

Professor and Chairman: S. L. Clark, Jr.

Professors: R. E. Bulger, S. C. Marks, Jr., M. K. Wolf

Associate Professors: S. B. Gagliardi, E. S. Kane, M. J. Mulroy, R. H. Singer

Assistant Professors: H. K. MacWilliams, J. M. Price, G. B. Schneider

Instructor: J. M. Cook

The Department of Anatomy, dealing with basic medical science, approaches biological problems from the structural point of view, in terms of development and function. A knowledge of structure provides the conceptual framework within which all development and function—normal and abnormal, healthy or diseased—must be understood. Living things consist of highly compartmentalized systems—organs, cells, organelles—in which biochemical events are quite different from those found in homogenates of tissues studied in the test tube. Continuing life is possible only because the elaborate structures of cells and tissues provide compartments in which mutually antagonistic but necessary chemical reactions can be kept separate.

Anatomy, the oldest of the medical sciences, deals with structure from the gross to the submicroscopic; the electron microscope and other anatomical instruments allow the structure of large molecules to be seen, thus bridging the gap between anatomy and biochemistry. Because of his or her broadranging interest in structure, the true anatomist is not satisfied with dissecting a system to understand the nature of its smallest components, but also works to understand how complex systems of cells, organs, individual organisms and even whole societies function. Anatomists are willing to accept the difficulties and uncertainties of working with complex systems because they are aware that such systems function in ways that cannot be predicted wholly from a knowledge of all their independent components.

Students in anatomy are, for a while, anatomists. They study structure as anatomists do: always in terms of development and function, and using the tools of anatomists—hands, eyes, microscopes, electron microscopes and the published work of other students of anatomy. Although the beginning students do not have time to become expert in using the electron microscope, they can examine the raw data—electron micrographs—just as anatomists do, gaining their own anatomical knowledge by first-hand experience. There are opportunities, for those interested, to spend additional time becoming more expert at solving anatomical problems independently. During the later years of the medical curriculum, there is opportunity to return to anatomy to learn the specialized anatomy of one's particular field of interest in medicine.

Department of Biochemistry

Acting Chairman: T. B. Miller, Jr.

Professors: R. W. Butcher, J. P. Flatt

Associate Professors: S. H. Burstein, F. J. Chlapowski, R. B. Clark, I. D. K. Halkerston, K. J. Hittelman, T. B. Miller, Jr., E. E. Smith

Assistant Professors: R. Barber, G. F. Fitzpatrick,* N. Fortier,** L. A. Kelly, R. F. McGuire, G. Nemecek

Research Professor: M. B. Hoagland

Associate Research Professors: D. V. Maudsley, F. Welsch

The Department of Biochemistry deals with the specific tools for understanding normal and diseased states and for rationalizing therapeutic intervention in disease. An appreciation of biochemical processes is fundamental to an understanding of contemporary medicine and to medicine in the future. As biochemistry becomes increasingly involved in the development of our understanding of human disease states, it becomes more important that the physician have a firm understanding of the molecular mechanisms by which cells maintain and control their various functions. The course deals primarily with the synthesis and transformations of biochemical compounds by mannalian cells with emphasis on structure-function relationships and control mechanisms. Since the vast amount of detail which presently comprises the discipline of biochemistry precludes a comprehensive coverage of medical biochemistry, stress is placed on the understanding of biochemical theory and principles rather than rote memorization of pathways. The principles of biochemistry are presented in a series of didactic lectures and conferences. Lectures are designed to present in a condensed form the most current knowledge available with regards to the principles of biochemistry, their relation to disease states and alterations of metabolic pathways. Conferences are designed to encourage discussion between faculty and students regarding specific lecture material and material of peripheral interest. The size of the conference groups may range from large to very small depending on student needs and difficulty of the material. This arrangement allows students who have had previous experience in biochemistry the opportunity to explore areas in which they are particularly interested while students with no previous experience can spend more time on the core material. The conference leaders are faculty members who have presented the didactic lectures and who are responsible for preparation of written evaluations of their students. Study questions and

*Joint appointment with Surgery
**Joint appointment with Medicine

problem sets presented with each lecture stress deductive reasoning in the application of biochemical principles, illustrate both qualitative and quantitative aspects of biochemistry, and form the basis upon which conference discussions are organized. Although a biochemistry laboratory is not taught as a formal course, a laboratory experience can be provided for any student who so desires. The research expertise among the faculty members of the department of biochemistry varies sufficiently so that a student may choose to work in almost any area of biochemical research. Through a research experience, the outstanding student can gain insight into the current concepts of medical treatment as it is related to medical research.

Department of Family and Community Medicine

Professor and Chairman: R. J. O. Catlin

Vice Chairman: D. B. Kessner

Professors: R. J. Bulger,° S. P. Caper,° H. S. Fulmer, S. D. Garrard,°° M. L. Ingbar, D. M. Kessner, T. C. McBride

Adjunct Professors: R. Bibace, E. E. Sampson, A. Yankauer°°

Associate Professors: R. A. Babineau, W. M. Burke,° J. R. Commons, W. L. Chan, H. P. Cleary, J. J. Frey, C. W. Hays, A. Kasparyan,° L. Lipworth, E. Mansell, C. E. Millard, J. Meyers

Assistant Professors: J. A. Albrecht, A. J. Barnes,°°° M. O. Bice, J. M. Carper, P. E. Cochrane, L. N. Eckhert,°° L. Fazen,°° E. W. Haggett, B. Hutchins, B. S. Levy, E. A. LaLancette, J. J. Lukes,° S. Marlowe,° L. E. Mayo, W. E. Miller, S. C. Pickens, K. E. Reichert, L. E. Roy, D. J. Rosen,°° D. A. Rosenfield, R. J. Roy, F. A. Sargent, G. Steinberg,°°°° H. P. Stelling, A. H. Storm, D. H. Wegman

Associate: Carolyn Cotsonas

Instructors: A. C. Barkin,°°° P. R. Barrette, L. M. Candib, K. Chawla, N. J. Doster, S. A. Evans, M. W. Greene, M. A. Godkin, N. J. Harris,°°°°° M. E. Huppert, M. A. McGowan, C. A. Rice, H. J. Turner

°Joint appointment with Medicine
°°Joint appointment with Pediatrics
°°°Joint appointment with Psychiatry
°°°°Joint appointment with Orthopedics
°°°°°Joint appointment with Otolaryngology

Field Associates: J. R. Abel, D. E. Clapp, J. G. Cotanche, L. J. Kendrew, R. M. Lane, T. Melchionda, L. H. Morre, G. W. Nemeth, J. R. Ralph

The Department of Family and Community Medicine assumes extensive teaching responsibilities both for undergraduate and post-graduate students in the Family Practice and Community Medicine Residency Programs. Faculty members in this area are very concerned with identifying and assisting communities in the vicinity of the School to meet community needs.Therefore, faculty have undertaken numerous service responsibilities, not only in the Medical School Hospital, but also in family health centers and model practice units associated with the Department.

Members of the Department have a variety of research interests, principally in areas relating to quality of care, epidemiology, and systems evaluation of health care provision.

A prime objective of medical student education is to make certain that the importance of treating the patient "as a whole" is recognized by future physicians. In other words, the future physician must perceive the influence of family, working, and social environment upon the health of an individual. Another prime objective is development of an understanding in regard to the responsibility which the future physician has toward the community "as a whole." To obtain the proper perspective, a certain body of knowledge, combined with the appropriate skills and attitudes, is of critical importance. Because these objectives are so central to the School's mission to provide physicians skilled in giving primary care, the Department has responsibility for a segment of the curriculum in each of the four undergraduate years.

During the first year, the Department participates actively in a course which is continued into the second year entitled "An Introduction to Patient Care." Throughout the initial months of the course, each individual student will develop interviewing and communication skills, and some knowledge of behavioral science. Relationships with physicians and other health care providers in communities within the state will be developed by each student. This will hopefully provide an ongoing experience for the duration of the medical school course, while introducing the continuity of care concept, which is vital for the successful practice of medicine. By enabling them to work with different physicians in the community, the course is intended to help students develop the art of proper consultation and referral to other specialized departments, both in the community and the University Hospital.

In the first year, the learning process focuses on study of the community as "a patient," and a three-week community clerkship is provided. By actually living and working in communities throughout Massachusetts, the student reviews existing health status and services, making recommendations based

on this study. Working directly with faculty, practicing physicians, other community health workers, and his or her peers, the student learns to identify and quantify existing major health problems, needs, and current changes, as well as the responsibility which students and others might have in guiding such change. The student learns about the health needs of people as individuals, and in their family life. The student also learns something of patients' expectations of physicians, along with the roles and functions of medical care providers. How medical care is and might be organized, financed, and delivered is emphasized. In the process, the student becomes familiarized with the private practice of medicine, the health department and other public agencies, the hospital, the nursing home, voluntary health agencies, experimental health care delivery systems, and the role of existing and proposed varieties of health manpower.

In the second year, principles of epidemiology and biomedical statistics are studied in a course conducted mainly through seminars.

During a six-week assignment in the clinical years, a highly individualized clerkship related to the student's career interests is structured in consultation with the student and faculty. Additionally, electives are offered in the first and fourth years, the latter being available in communities elsewhere in the United States and developing countries.

The Department is also responsible for the only approved family practice residency program in the state. Three model-teaching practices serve as community and family ambulatory service and research centers. It is hoped that a fourth center will be added shortly.

One of the program's principal features lies in the various kinds of health centers available. One is an urban core center, serving a community which contains members predominantly in lower socio-economic groups. Another is a suburban-type model, although it is in fact located in the center of Worcester. A third model is in a rural setting and serves the needs of one small town about twenty-five miles from Worcester, with services also provided for six surrounding neighborhoods. The fourth model is in a small industrial town about thirty miles from the city. The four centers represent a cross-section of practice-models in which the family physicians may find themselves. The program is currently approved for thirty-six residents and may soon be expanded to forty-eight. It is the first step in a state-wide program under the University's auspices, which is directed toward meeting the primary care and other health needs of this state.

The Department is also developing a residency program in Community Medicine, which will introduce graduates to aspects of health care provision, epidemiology, and research.

Department of Medicine

Professor and Chairman: J. E. Dalen

Vice Chairman: J. P. Howe, III

Lamar Soutter Distinguished Professor: R. B. Hickler

Professors: N. R. Blacklow,* L. E. Braverman,** E. Budnitz, R. J. Bulger,*** J. J. Calabro,**** S. P. Caper,*** J. E. Dalen, M. H. Kaplan, M. J. Krant, P. H. Levine, G. E. Levinson, J. A. Merritt, L. Pechet,****** R. H. Saunders, Jr., P. B. Schneider, D. H. Spodick, E. B. Weiss

Research Professors: B. V. Berkovits, C. L. Feldman, E. Rosemberg

Associate Professors: W. M. Burke,*** G. L. Eastwood, L. M. Edelstein,***** M. H. Farmelant,****** N. M. Gantz, R. H. Glew, R. P. Gruninger,* E. P. Hoffer, J. P. Howe, III, A. Kasparyan,*** J. A. Lundy, S. Malkiel, A. L. Michelson, J. Palek, J. A. Paraskos, P. G. Pletka, R. W. Robinson, A. P. Safran, J. M. Seidman,** L. M. Snyder, G. L. Spanknebel, O. E. Starobin, I. O. Szymanski, A. G. Vagenakis, I. N. Wolfson

Assistant Professors: R. K. Anand, J. E. Ansell, M. B. Baron, C. A. Birbara, V. P. Birbiglia, P. P. Blevins, N. Bress, A. C. Brewster,****** B. R. Brown, W. T. Carleton, A. I. Cederbaum, W. B. Coen, R. A. Cordon, V. P. DiDomenico, F. X. Dufault, R. B. Endriga, K. Farbman,* N. Fortier,† E. M. Fribush, S. L. Garg, S. Glasser, F. W. Green, N. Higano, M. L. Hoovis, J. D. Hull, A. P. Iacobucci, S. R. Kanner, R. L. Kendall, T. J. King, E. Landau, L. V. Leb, G. A. Levi, J. J. Lukes,*** H. H. MacGilpin, S. Marlowe,*** J. J. Massarelli, R. E. Meyer, D. Miller, R. M. Mills, Jr., P. F. Molinari, L. J. Morse, F. M. Navazio, I. S. Ockene, F. K. Paddock, A. V. Patwardhan, B. R. Rose,** C. Rosen, B. Sadrnoori, J. H. Schwartz, P. S. Schwartz, A. Shuster, J. B. Singh, J. I. Spector, P. L. Stagg, S. M. Tarnower, G. A. Theodosiou, H. Tulgan, A. D. Ward, W. S. Weir, J. K. Zawacki, H. Zimbler

Associates: J. Albert, P. Aney, S. Bachrach, M. Baum, P. E. Berman, R. E. Bessette, J. I. Bessoff, G. F. Bishop, G. E. Bowen, J. R. Brechtl, C. I. Brink, J. Budnitz, F. Burno, L. D. Campos, L. J. Cataldo,

*Joint appointment with Microbiology
**Joint appointment with Physiology
***Joint appointment with Family and Community Medicine
****Joint appointment with Pediatrics
*****Joint appointment with Pathology
******Joint appointment with Radiology
†Joint appointment with Biochemistry

J. L. Colker, H. M. Dean, R. J. Dorris, P. J. Gardner, D. A. Gillis, H. R. Glodt, S. P. Gupta, W. Halpern, G. W. Josephson, M. J. Kussman, J. P. Lock, R. Lynch, R. P. McInerney, P. V. Nally, J. F. O'Brien, M. A. Perer, R. Perera, J. A. Podbielski, H. E. Rubin, S. Schikowitz, R. I. Schwartz, M. Spierer, J. I. Starr, P. S. Volastro, A. H. Wasser, R. F. Williams, T. H. Winters, C. I. Wohl

Instructors in Medicine: J. W. M. Agar, V. T. Barnaba, G. T. Bird, L. M. Cole, M. El-Zaheri, W. L. Fanning, A. Faustine, P. D. Fleming, C. I. Haffajee, A. R. C. Harris, P. D. Jarry, J. A. Kane, S. J. Kaner, F. H. Liu, B. Lobovits, P. E. Miller, R. Noto, B. D. Rabinowitz, S. E. Salomon, L. L. Stolbach, T. G. Stowe, R. Sudhindra, T. J. Theodoropoulos, R. P. Tucker, G. T. Wallender, T. P. Weaver

Endocrinology Section

Chief—L. E. Braverman

Gastroenterology Section

Chief—G. Eastwood

Hematology Section

Chief—L. Pechet

Immunology and Rheumatology Section

Chief—M. H. Kaplan

Dermatology

Acting Chief—L. M. Edelstein

Infectious Disease Section

Chief—N. R. Blacklow

Medical Oncology Section

Acting Chief—M. J. Krant

Pulmonary Medicine Section

Chief—Open

Renal Medicine Section

Chief—P. Pletka

THE DEPARTMENT OF MEDICINE contributes to student education during each of the school years. In all years the purpose is to help the student to organize basic information within a clinical context. It is emphasized that the physician combines the intellectual exercise of thinking of disease as a pathophysiological event with a concerned understanding of the impact of illness on a fellow human being.

During the first two years, the faculty of medicine contributes well over 100 hours of clinical correlation conferences within the context of the various basic science courses. This is the equivalent of a full course in "pathophysiology"—oriented to disorders of each of the major organ systems. The course in physical diagnosis during the second year has several components. The equivalent of one-half day per week is scheduled for this course throughout the year, and the class is divided among the several affiliated hospitals. During the fall term, a systematic approach to the physical examination is presented in a series of weekly exercises, involving both didactic and practical experience. For the remainder of the year, students are assigned in pairs to clinical instructors who supervise their history taking and physical examination on assigned patients. The patient work-up on one afternoon is followed two days later by a detailed review of the written record of the medical history and physical findings with the instructor, this sequence occurring every other week. During the second half of the year, weekly lectures are given to the assembled class by specialists who describe the clinical approach to patients presenting major symptom complexes, such as dyspnea, edema and anemia.

The clinical clerkship in medicine is conducted at three different periods during the third year, each period lasting 12 consecutive weeks. Groups of students are assigned to the medical services at the affiliated hospitals where each works as an integral part of the ward team, participating in all activities of the medical department of the hospital. Each student evaluates two or three new patients per week and is assigned to a preceptor with whom he or she reviews, discusses and analyzes the clinical work on a regular basis. Each hospital provides at its descretion additional student instruction in specialized areas; e.g., pulmonary laboratory, cardiac catherization laboratory, electrocardiography, and the emergency room. During the medical clerkship, specifically structured instruction is also provided in three additional areas: radiology, neurology, and dermatology. Six months are available during the third and fourth years for elective courses. Ample opportunity is afforded the student for a concentrated experience in the various laboratory-based clinical sub-specialties in medicine at the several affiliated hospitals, or at other medical centers.

Department of Microbiology

Professor and Chairman: D. J. Tipper

Professors: M. A. Bratt, N. Blacklow°

Associate Professors: R. Gruninger,° A. S. Jacobson, C. Mulder°°

Assistant Professors: G. Cukor, M. J. Dul, K. Farbman,° A. K. Hopper, T. G. Morrison, D. C. Parker, M. M. Susskind, R. L. White

Instructor: M. Iwaya

The Department of Microbiology offers a course to medical students in the fall of their second year, and our faculty plays a major role in the Genetics course taught at the end of the first year. The Microbiology course commences with an immunology section, whose emphasis is on the basic biology of the adaptive immune system, with examples of clinical relevance. A subsequent section on host-parasite relationships deals more specifically with the responses of human hosts to microbial parasites, which involve both the adaptive immune system and constitutive defenses of the inflammatory, complement, and phagocytic systems. The mechanisms of pathogenesis of infectious agents and the relationship between normal flora and pathogens are also discussed in this section.

The rest of the course deals with individual agents of infectious disease: viruses, bacteria, fungi and more complex parasites. A section on the chemotherapy of infectious disease is also included, and the entire course is designed to provide students with an understanding of the basic principles and specific data appropriate to further study of the diagnosis, pathogenesis, prognosis, prevention and treatment of infectious disease. The course terminates with an infectious disease section stressing the patient-oriented, problem-solving approach to microbiology. This section is provided by faculty from the Department of Infectious Disease.

A section on basic bacterial physiology runs parallel to immunology at the start of the course. It covers the structure and functions of the prokaryotic cell, its molecular biology and life cycle, and its interactions with its environment. Laboratory exercises here and later in the course are designed to familiarize students with the characteristics and identification of common human bacterial parasites, including both normal flora and recognized pathogens. The techniques used are essentially similar to those employed in standard hospital microbiology laboratories. This section is followed by specific segments of the course dealing with bacterial

°Joint appointment with Medicine
°°Joint appointment with Pharmacology

pathogens, viral pathogens, fungal pathogens, and protozoal and animal parasites. The infectious disease section serves as a focus for integration of this information in terms of disease entities such as pneumonia, meningitis, gastrointestinal tract infections, etc.

Department of Neurology

Professor and Chairman: D. A. Drachman

Professors: E. M. Marcus, M. K. Wolf***

Associate Professors: I. F. Abroms,* S. Kapen

Assistant Professors: R. Bazemore, U. DeGirolami**

Associate: A. Fullerton

Instructor: N. Sodha

The Department of Neurology is the most recently constituted clinical department in the Medical School. The goal of the Department is to apply to clinical problems in medicine the special knowledge derived from the basic disciplines of the neurosciences—in teaching at the graduate and undergraduate levels; in developing the highest level of care for patients with neurologic diseases; and in research into the nature and treatment of nervous system disorders.

The specialty of neurology may be viewed as the focal point of both clinical and basic disciplines that come to bear on the nervous system. These include medicine, neuroanatomy, neurophysiology, neurochemistry, neuropathology and the behavioral sciences, among others. In order to develop an understanding of neurology, a proper balance must be struck between clinical experience and instruction in the neurosciences. Ideally, the neurosciences should help to explain the clinical phenomena of neurology, and ultimately point the way to advances in patient care; while the insights derived from the clinical neurology patients serve to guide the direction of basic investigations.

Students will have the opportunity to be exposed to the teaching of neurology throughout their four years at the University of Massachusetts Medical Center. In the first year, the Department of Neurology will participate in both the neurosciences and clinical correlations courses. During the sophomore year, a section of the physical diagnosis course is devoted to the performance and interpretation of the neurological

*Joint appointment with Pediatrics
**Joint appointment with Pathology
***Joint appointment with Anatomy

examination and to simple concepts of localization of lesions and disease states. Additional neurological instruction is carried out at the bedside and in the clinics during the third year medicine clerkships. In the senior elective period, clerkships in clinical neurology and selected research experiences will be offered, increasing as the Department evolves in its areas of expertise.

Facilities used in the teaching of neurology include the inpatient and outpatient areas of the University of Massachusetts Medical Center; St. Vincent Hospital; the Worcester City Hospital; and the clinical and basic laboratories of the Department of Neurology.

Department of Nuclear Medicine

Professor and Acting Chairman: L. E. Braverman*

Associate Professor: A. G. Vagenakis*

Adjunct Assistant Professor: C. E. Hotte

Adjunct Instructor: J. Idoine

The Department of Nuclear Medicine is a separate Hospital and Medical School department. All *in vivo* function and imaging techniques employing radioisotopes and almost all *in vitro* radioimmunassays, including hormones and drugs, are carried out in Nuclear Medicine. Research space is available in the Clinical Science Building. In view of the School's strong interest in endocrinology and cardiovascular medicine, joint research projects are currently being done.

Teaching activities in Nuclear Medicine include a joint venture with Worcester State College granting the B.S. degree in Nuclear Medicine Technology, participation in the second year laboratory medicine course and joint student-house staff electives in Endocrinology-Nuclear Medicine. Plans for a Worcester-wide Nuclear Medicine Residency Program and a Medical School mini-course in Nuclear Medicine are now being formulated.

*Joint appointment with Medicine

Department of Obstetrics and Gynecology

Professor and Chairman: R. E. Hunter

Professor: L. E. Lundy

Associate Professors: R. E. Bennett, D. Booker, R. J. Carpenter, Jr., D. B. Dorman, A. R. Jones, S. Lerner, P. W. Ouellette, E. Pahl, G. Purcell

Assistant Professors: M. S. Allan, J. Bettigole, H. L. Bishop, R. Burke, H. B. Campbell, L. C. Clarke, J. G. Fitzpatrick, K. Green, B. E. Griffin,* R. F. Haling, Jr., T. F. Halpin, R. E. Johnson, F. G. Kachinski, H. L. Kirkendall, Jr., K. L. Kenler, J. W. Morgan, P. V. O'Leary, T. B. Pokoly, A. F. Powell, J. Reder, E. F. Russell, Jr., P. Silva, K. W. Sinish, K. M. Sussman, W. F. Tauber, J. J. Zadworny

Associates: B. E. Cole, N. Epstein, J. S. Hollander, E. O. Hubbard, Jr., F. E. Levison, T. F. McCarthy, S. J. Pekala, A. Rahaghi, F. J. Riley, J. J. Siragusa, Jr.

*Joint appointment with Pediatrics

Instructors: J. Farricy, H. B. Hunt, T. W. Hunter, H. A. Jan, W. McLaughlin, M. Shreefter

The Department of Obstetrics and Gynecology provides a variety of educational experiences in order to better prepare the student to deal with those conditions peculiar to women and to understand how the altered physiological state complicates other medical, surgical or mental illnesses.

Rapidly changing social values, new concepts in reproductive biology, a better understanding of the pathogenesis of disease, increasing perfection of technical skills and more sophisticated therapeutic agents and modalities have all had a profound impact on obstetrics and gynecology and are producing significant changes in this specialty. To some extent these changes are reflected in the curricular time devoted to this specialty in medical school. In some medical schools, the study of obstetrics and gynecology has become almost entirely elective and students may miss the opportunity to become familiar with the physiological processes and diseases peculiar to women. The establishment of a new school provides the opportunity for a fresh approach to the teaching of this important specialty.

The major clinical experience is provided through a six-week rotation at either the Memorial Hospital in Worcester, the Medical Center of Western Massachusetts in Springfield, or the Berkshire Medical Center, Pittsfield. At these three hospitals, the student has access to the full range of obstetrical and gynecological problems as well as to outpatient facilities. Each student has the opportunity to participate in prenatal, oncological, family planning, fertility and high-risk pregnancy clinics. The clinical clerkship in obstetrics and gynecology is conducted during six consecutive weeks in the third year. Groups of students are assigned to the medical services at the affiliated hospitals where each works as an integral part of the ward team participating in all activities of the obstetrical and gynecological department of the hospital.

In the obstetrical clinics, the student becomes adept at taking the medical history and carrying out the physical examination of the obstetrical patient. Prenatal care is stressed as a dynamic process for the maintenance of the health of both mother and fetus, and for the early detection and correction of complications. Students have the opportunity to acquire considerable experience in the conduct of normal and abnormal labor, carry out a suitable number of deliveries and, in addition, observe and assist at some of the more complicated procedures such as fetal monitoring, amniocentesis, intrauterine transfusion, cesarean section, etc.

On the gynecology service, students are assigned to both ambulatory and hospitalized patients. Full-time faculty, residents and voluntary staff

participate in the supervision and instruction of students in both formal and informal exercises in a variety of clinical settings.

In the fourth year, students may elect additional training in specific areas of obstetrics and gynecology. Some of these provide opportunity for the student to function at the level of an intern within the hospital and clinic while others can be designed to permit work with individual private physicians. Included in the elective offerings are opportunities to become thoroughly familiar with technical procedures of special interest to students of obstetrics and gynecology.

Department of Ophthalmology

Acting Chairman and Assistant Professor: G. K. Asdourian

Associate Professors: J. F. Cosgrove, E. R. Yasuna

Assistant Professors: R. J. Broggi, T. J. Condon, E. B. Epstein, J. L. Guillette, E. P. Jewett, Jr., W. G. Rice, Sr., C. R. Roberts

Associates: M. L. Cancilla, G. R. Schultz, R. R. Singer

Instructors: E. H. Bennett, D. J. Fitzgerald, J. Galt, F. Ganias, B. A. Kolbe, G. Meltzer, T. M. Norton, L. Posner, W. G. Rice, Jr., R. S. Sable

Department of Orthopedics

Professor and Chairman: A. M. Pappas

Associate Professors: N. E. Beisaw, V. S. Johnson, R. B. Keller, J. J. Monahan, P. V. Shannon

Assistant Professors: C. M. Akins, J. L. Bianchi, N. Cohen, E. J. Dunn, A. E. Ellison, F. Glockner, N. A. Malek, F. D. O'Connell, P. A. Panagakos, W. D. Shea, F. A. Slowick, Jr., W. Southmayd, I. M. Spear, G. Steinberg,* F. J. Waters

Associates: L. D. Cohen, M. F. Yvars

Instructors: N. W. Beberman, L. S. Buckley, J. J. Canfield, Jr., R. Caron, R. J. Groves, A. Haddad, I. S. Hurwitz, P. J. Lahey, D. W. Moore, C. A. Paquette, N. L. Pollock, H. Sandick, J. G. Scanlon, R. E. Senghas, T. F. Sullivan

The Department of Orthopedics' portion of the curriculum provides an introductory approach to problems of the neuromuscular system. Topics covered include congenital malformations, trauma, infection, metabolic disease and neoplasm. Orthopedics presents the opportunity to integrate aspects of the pre-clinical sciences with pediatrics, medicine and surgery in an interdisciplinary approach to the neuromusculoskeletal system.

The elective program provides the opportunity for students to observe and participate in the practice relationship with orthopedic surgeons. Students attend conferences at the affiliated hospitals and participate in the surgical, office and emergency practice of the preceptor or group of preceptors. The orthopedists who have agreed to serve as preceptors for this program are located in various communities throughout the Commonwealth.

*Joint appointment with Family and Community Medicine

Department of Pathology

Professor and Chairman: G. Majno

Professors: G. H. Friedell, A. A. Like, L. Pechet,* A. C. Templeton

Visiting Professors: J. F. Danielli, H. E. MacMahon

Associate Professors: W. Beautyman, L. Edelstein,* J. M. Gibson, R. S. Harper, L. P. James, Jr., I. Katayama, A. B. Russfield, D. T. Purtilo

Assistant Professors: J. Bhawan, R. W. Bain, A. C. Brewster,* R. K. Brown, U. DeGirolami, G. W. Douglas, I. Joris, P. Parija, J. S. Ross, J. M. Valigorsky, D. T. Yu

Instructor: H. Cuenoud

Visiting Lecturers: A. T. Hertig, E. P. Richardson, Jr., S. L. Robbins

The Department of Pathology course represents the medical student's first formal encounter with the notion of disease. Because the agents of disease are so many and varied (from bacteria and viruses to congenital defects, drugs, weapons, unhappiness and the physicians themselves) the pathology course must of necessity overlap with almost all other courses offered within the Medical School. It remains unique, however, in its approach—which is primarily to analyze the body's responses to injurious agents, whatever their nature.

Accordingly, the course opens with a brief introduction to general pathology, dealing with the basic manifestations of disease at the level of cells and tissues. This is followed by a longer section on special pathology, which is the study of specific diseases as they affect different organs and systems.

Throughout both sections, pathophysiology (i.e., the relation of diseased structures to diseased function) is emphasized, with the collaboration of the departments of Medicine, Surgery and Radiology.

Lectures are kept as informal as is compatible with effective teaching. Most lectures are followed by laboratory sessions during which students examine the gross and microscopic changes caused by disease. Seminars and clinicopathologic conferences are offered at appropriate times; once a week students present to the class selected biopsies, whereby they teach themselves some practical surgical pathology while also learning how to present a case. Each student also participates in at least one autopsy, including the "work-up" of such autopsy, as an exercise in synthesis. Close association with the pathology departments of affiliated hospitals in the Worcester area (Worcester City, Hahnemann, Memorial and St. Vincent

*Joint appointment with Medicine

hospitals) exposes the students to a variety of approaches and thus broadens their experience.

The course is intended to represent a judicious compromise between the wholly morphologic pathology of the nineteenth century, and the more recent integrated courses in which the guiding line of pathology is splintered and lost. The overall aim is to provide students with a sound basis for the study and practice of clinical medicine.

Department of Pediatrics

Professor and Chairman: J. B. Hanshaw

Professors: J. Brem, J. J. Calabro,° J. A. Duggan, S. D. Garrard,°° A. M. Pappas,°°° C. V. Pryles, T. M. Teree

Associate Professors: I. F. Abroms,°°°° G. T. Critz, A. N. Drescher, A. P. Scheiner, H. H. Shuman, E. A. Sumpter, P. H. Viles

Assistant Professors: F. J. Bednarek, Jr., C. A. Bergman, M. S. Blank, J. D. Curran, J. H. Donovan, Jr., S. K. Dopkeen, N. L. Eckhert,°° L. Fazen,°° A. J. Fitzpatrick, B. E. Griffin, A Gurwitz, P. P. Karpawich, R. E. Kauff, M. J. Ossi, J. A. Riordan, D. J. Rosen,°° C. A. Roy, W. C. Smith, R. W. Sorrenti

Associates: L. DeNicola, H. E. Gold, J. W. Harding, F. J. Harrington, T. H. Hayden, J. Izsak, M. B. McMurray, D. P. Miller, R. G. Neuhardt, R. Pagano, G. E. Porter, D. C. Shukan, J. F. Steele-Perkins

Instructors: P. H. Bazemore, H. J. Brick, J. Brigham, S. K. Chung, J. M. Cummings, Jr., C. M. Donovan, B. S. Fieldman, R. K. Gedachian, D. P. Hays, M. E. Hirsch, T. Ismailji, F. Laucka, D. M. Martin, M. Morris, F. L. Nenna, Z. Panjvani, A. Ramachandra, V. Sachdeva, A. Sharples, A. Sola, S. Stowe, M. P. Weinstein, S. Weiss

The goals of the Pediatric Department are to offer the student an appreciation of those physical and functional differences between infants and children and adults, which must be considered by the physician regardless of his or her field of concentration; and to afford the student a meaningful exposure to infants and children in order to assist in making a career decision.

During the first two years, members of the Department participate in various basic science department and interdepartmental exercises (lectures

°Joint appointment with Medicine
°°Joint appointment with Family and Community Medicine
°°°Joint appointment with Orthopedics
°°°°Joint appointment with Neurology

conferences, laboratories), emphasizing physical and psychosocial aspects of health and disease in children and providing integration with the content of the various basic science courses. Interdisciplinary courses in genetics and the behavioral sciences are two areas in which the Department has specific teaching responsibilities.

The core clinical clerkship (third or fourth year) consists of a six-week period during which the student participates as part of the health care team seeing patients under supervision in various ambulatory and inpatient facilities. Wards and clinics of St. Vincent Hospital and the University of Massachusetts Medical Center are used for the bulk of the teaching with experience in neonatal medicine available at the Memorial Hospital (Worcester). In addition, several students may spend their entire six-week core clerkship at either Baystate Medical Center (Springfield) or the Berkshire Medical Center (Pittsfield) where the Pediatric Department has formed affiliated relationships for educational purposes.

Electives for students who have completed their core clerkship are available in Worcester in general pediatrics (inpatient and/or ambulatory), neonatology, and certain subspecialty areas. Electives outside the Worcester area may be arranged with the help of the Department.

Department of Pharmacology

Professor and Chairman: N. C. Brown

Professors: T. B. Miller, D. R. Waud

Associate Professors: K. R. Carlson, M. G. Marinus, C. Mulder, E. R. Smith, G. E. Wright

Assistant Professors: A. T. Canada, R. E. Humphreys, L. Spatz

Research Associate Professor: F. H. Schneider

The Department of Pharmacology course, part of the basic science portion of the curriculum, forms a bridge between pre-clinical and clinical studies. Emphasis is given to basic pharmacological principles as they are related to modern therapeutics. After a general introduction, the biochemical and physiological basis of drug actions are considered for the principal classes of drugs and discussed with illustrations relevant to medical practice. Selected laboratory experiences and conference sessions are offered as illustrations of important topics and principles.

Department of Physiology

Professor and Chairman: H. M. Goodman

Professors: F. S. Fay, T. B. Miller,° L. E. Braverman°°

Associate Professors: J. G. Dobson, E. M. Ettienne, J. D. Feinblatt, P. Grigg, J. J. Singer, M. Susan Smith

Assistant Professors: T. W. Honeyman, J. V. Walsh

Research Professors: D. R. Komintz, J. A. McCracken, N. E. Sondak

Research Associate Professor: R. A. Tuft

Research Assistant Professor: J. M. Perry

Research Associates: G. P. Frick, G. Grichting, J. A. Pudney, C. Scheid

Assistants: J. S. Czieman, L. E. St. Michael

Visiting Professor: F. Heinmets

THE DEPARTMENT OF PHYSIOLOGY offers instruction designed to provide a working knowledge of the fundamental aspects of physiology and to provide a foundation for an understanding of the functional bases of both health and disease in man. Because continuing advancement in modern medicine rests in large measure upon progress in physiology, the student, and later the physician, must be equipped to keep abreast of new developments in the field. The course work therefore seeks to balance broad coverage of the wide range of physiological subspecialties with in-depth analysis of certain topics that are particularly illustrative of basic principles

°Joint appointment with Pharmacology
°°Joint appointment with Nuclear Medicine

and methods of analysis. In this way, the student acquires both the factual background and the rational approach to the organization and evaluation of information that are the prerequisites for continuing self-education.

Studies in the Department of Physiology begin with intensive consideration of basic aspects of cellular physiology, with emphasis on the functions of biological membranes. Detailed consideration is given to the neural membrane, its electrical properties, and the integration of neural impulses in the central nervous system. This is followed by an examination of the physiological systems responsible for the regulation of the cellular environment: the cardiovascular, respiratory, renal and gastrointestinal systems. The course concludes with a consideration of the integrative functions of the endocrine system. In addition to formal lectures, throughout the course there are frequent small group conferences, workshops and problem-solving sesssions. A few selected laboratory exercises introduce the student to the instruments and techniques available for the study of physiological processes. They also provide graphic illustration of the concepts studied in the lecture hall. The laboratory exercises are supplemented with demonstrations and films.

Department of Psychiatry

Professor and Chairman: S. Walzer

Professors: R. Bibace,* E. Mason, D. Myerson

Assistant Professors: A. Barnes,* P. Rosenthal

Associate Professor: R. Wolf

Instructors: B. Gaev, P. Geronimo, M. Hashimi, C. Marshall, A. Parker, A. Rouse, L. Seeve, R. Yodashkin

The Psychiatry Department has been organized recently. Over one hundred affiliated faculty at other institutions throughout the state are members of the department. Their names will appear in the next edition of the catalogue.

The Department of Psychiatry has developed a curriculum aimed at acquainting students with the changing patterns of human behavioral growth and development throughout life and the multitude of biological, psychological and social factors that influence it. Attention is paid to both the adaptive and maladaptive mechanisms employed by the individual in order to cope with the experiences encountered throughout the developmental epochs. Both normal and abnormal human behavioral

*Joint appointment with Family and Community Medicine

development are presented with an interactional, multidisciplinary orientation, emphasizing many different psychological, biological and social theoretical systems. Given this conceptualization, it is hoped that students will develop flexible attitudes toward the understanding of and the treatment approaches to the psychiatric patient. Emphasis is placed on the possibilities for early recognition and for prevention of handicapping psychological problems that prevent individuals from realizing their full developmental potential.

During the first year the medical student is exposed to didactic lectures and clinical experiences aimed at presenting the patterns and mechanisms of normal human behavioral growth and development. In the second year the principles of diagnosis and management of psychopathology are emphasized.

Students spend their clerkships in both hospital and community clinic settings which provide a broad exposure to a variety of psychiatric problems. For those with special interests in psychiatry, the department provides several electives for fourth year students.

It is the hope of the members of the Department of Psychiatry that the humanistic approach embodied in this curriculum will encourage students to view their patients as complete and complex human beings rather than as clinical syndromes.

Department of Radiology

Professor and Chairman: L. E. Hawes

Professors: N. L. Avnet, M. L. Janower

Associate Professors: S. P. Kadish, E. F. Kilroy, R. J. Messer, J. E. Meyer, R. Salomon, L. L. Engstrom

Assistant Professors: W. A. Carey, J. V. Carroll, D. A. Cavan, F. B. Fitts, D. Fitzgerald, D. J. Goodman, J. F. Gowdey, S. G. Lathi, J. Levine, C. M. Malhotra, V. D. Raptopoulos, J. C. Smith, Jr., F. A. White, W. Zezulin

Associates: R. F. Austin, J. F. Lingley, J. D. Villiotte

Instructors: K. T. Benedict, Jr., P. S. Chen, W. B. Choe, R.O. Danford, S. J. Masters, J. F. Rentz, D. A. Ostfeld, V. C. Patel, J. D. Poutasse, J. F. Rentz, D. S. Schwartz, M. A. Weiner, H. T. Wolfman

Consultant: W. A. Eddy

INSTRUCTION IN X-RAY DIAGNOSIS and therapy is an essential part of the education of the medical student.

X-ray teaching is correlated with instruction in Anatomy (first year), and in Medicine, Surgery and Pediatrics in all years, as well as other specialties, such as Orthopedics. On an elective basis, in the first year, there is a short-term elective up to five days in length for learning the methods of diagnosis of disease in the lungs with considerable personal involvement of the student in observation of his own films. In the third year class, demonstrations of x-ray films are given for a one- to two-hour period in important anatomical areas, where x-ray diagnosis has much to offer. In the fourth year, an elective of one month has proven to be instructive to the student.

Daily clinical conferences, given by faculty, are directed to the use of x-ray as a part of the diagnostic armamentarium of a physician. Grand Rounds in radiology are presented on a regular basis at the Medical School.

Instruction in radiotherapy is available at the Worcester City, Memorial and St. Vincent hospitals. Radiologists at Pondville Hospital have recently joined the faculty of the Medical School and make available their own knowledge and long experience at this pioneer treatment center to students.

Department of Surgery

Professor and Chairman: H. W. Wheeler

Professors: M. A. Aliapoulios, E. J. Croce, G. R. Dunlop, J. B. Herrmann, L. Soutter (Emeritus)

Associate Professors: G. L. Haidak, D. Hight, R. A. Johnson (Neurosurgery), J. J. Manning, F. J. McCready, J. Rothmeier (Biomedical Computing), W. T. Small, R. J. Tracy, R. J. Utzschneider, C. S. Whelan

Assistant Professors: L. F. Anastasia (Thoracic Surgery), E. L. Amaral, D. P. Brown, F. G. Cataldo, J. P. Chandler, H. G. Clermont, J. F. Curran, Jr., C. C. Curd, B. S. Cutler, R . I. Davidson (Neurosurgery), C. Durham, G. F. Fitzpatrick, J. F. Furcinitti, E. I. Garick, J. W. Henderson, E. O. Horne, J. T. Howard, B. N. Josephs, K. C. Kirkland, E. W. Leibowitz, J. C. McCann, Jr., J. E. D. McGuigan, Jr., J. R. Neary, J. B. Petter (Thoracic Surgery), F. A. Pualwan, P. J. Sadighi, J. I. Sanders (Thoracic Surgery), W. A. Sayman, R. J. Silkman, W. E. Silva, B. B. Stone (Neurosurgery), T. J. Vander Salm (Thoracic Surgery), M. D. Wertheimer, R. Zupanec

Associates: E. J. Galla (Neurosurgery)

Instructors: W. A. Blais, M. G. Ciborski, R. G. Colby, J. S. Cranford, N. N. Jasir, L. A. Palma, N. A. Patwardhan, R. P. Walchenbach

Lecturer: R. A. Peura (Biomedical Engineering)

Fellow: S. Doko

Senior Consultants: W. G. Austen (Cardiac Surgery), M. J. Buckley (Cardiac Surgery), W. M. Daggett (Cardiac Surgery)

The Department of Surgery participates in interdisciplinary teaching in the first two years and offers third-year students a 12-week introductory course in surgical care. Undergraduate teaching emphasizes those aspects of surgery which are pertinent to all practicing physicians, and not just those engaged in the practice of surgery. The emphasis is on the pathophysiology of surgical patients, rather than on surgical technique. Most of the students' time is spent in clerkships, which include the major surgical specialties. Emphasis is given to bedside teaching and direct student participation in patient care. An effort is also made to familiarize the student with the spectrum of careers in surgery and to indicate which surgical specialties are most needed at the present time. To assist in this objective, each student is assigned a preceptor in surgery from the voluntary clinical staff of surgeons practicing in the Worcester area. Fourth-year elective courses in surgical fields are also available.

Department of Otolaryngology

Associate: M. Taylor

Instructors: F. J. Catalfumo, J. R. Fine, J. P. Hughes, S. E. Kurland, J. B. Liland, N. J. Harris,* M. Zamansky

*Joint appointment with Family and Community Medicine

Department of Plastic Surgery

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Associate Professors: A. F. Bom, W. H. J. Chang

Assistant Professor: O. S. Stern

Associates: C. A. Bacchetta, P. M. Haidak

Instructor: N. H. Gomez

Department of Urology

Acting Chairman: H. M. Constantian

Associate Professors: H. M. Constantian, J. F. Sherer, Jr.

Assistant Professors: R. D. Blute, L. M. Felton, Jr., P. J. Howard, Jr. S. A. Jaffee, R. J. Phaneuf, S. D. Weinert

Associates: C. Mamonas, R. W. Marcure, G. E. Vazakas

Instructor: T. B. Hopkins

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Obstetrics/Gynecology	Ganson Purcell, M.D.
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Garstka, Alan E., M.D., *Rochester General Hospital,* Medicine
Green, Errol D., M.D., *Edward W. Sparrow Hospital,* Medicine
Heuman, Douglas M., M.D., *Medical College of Virginia,* Medicine
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Spencer, Elizabeth J., *Swampscott*, D.C.S., 1971, McGill University; B.S. 1974, McGill University

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Wolf, Jonathan S., *Worcester*, B.A. 1975, University of Pennsylvania
Woolard, Robert H., *E. Brookfield*, A.B. 1975, Clark University
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Choate, Cynthia P., *Boston*, B.A. 1970, University of Pennsylvania
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Clark, Abigail A., *Cambridge*, B.A. 1974, University of Massachusetts (Amherst)
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Curley, Federick J., *Milton*, A.B. 1976, Harvard College
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Dubin, Howard G., *Brookline*, B.A. 1976, Brandeis University
Ellis, David W., *Beverly*, B.A. 1966, Bowdoin University
Evans, David D., *Milton*, B.S. 1976, Harvard University
Feigon, Elizabeth A., *Cambridge*, A.B. 1964, Radcliffe College
Ford, Deborah A., *Worcester*, B.A. 1976, Wellesley College
Fuller, Joseph E., *Lynn*, B.S. 1975, American University
Garcia, Jesus R., *Amherst*, B.S. 1976, University of Massachusetts (Amherst)
Gerstein, Paul S., *Newton*, B.A. 1973, University of Massachusetts (Amherst)
Gerut, Zackary E., *Milton*, B.A. 1976, Brandeis University
Glasser, Debra L., *Newton Centre*, B.S. 1975, Union College
Hakim, Christopher A., *Shrewsbury*, B.S. 1976, University of Massachusetts (Amherst)
Harrison, Thomas A., *Somerville*, B.S. 1973, Massachusetts Institute of Technology
Healy, James M., *Bedford*, B.S. 1976, Creighton University
Hennessy, Robert B., *Westboro*, B.S. 1972, Tufts University
Henderson, Mark, *Salem*, B.A. 1975, Harvard College
Horwitz, Wendy S., *Lincoln*, B.A. 1975, Boston College
Hurley, Ronald J., *Newburyport*, M.S. 1971, Harvard School of Public Health
Hurter, Bruce P., *Somerville*, M.A. 1976, Boston University Medical School
Jennas, Zandra S., *Shrewsbury*, B.S. 1975, University of Arizona
Johnson, Mark D., *North Dighton*, B.S. 1976, Worcester Polytechnic Institute
Katz, Howard J., *Ludlow*, B.A. 1974, University of New Hampshire
Kaye, Barry N., *Hull*, B.A. 1973, George Washington University
Keefe, Paul A., *W. Roxbury*, B.A. 1970, Notre Dame University
Kelliher, Helena H., *Milton*, B.S. 1975, Jackson College
Kerschmann, Russell L., *Boston*, M.S. 1976, Northeastern University
Kornack, Fulton C., *Worcester*, B.A. 1974, Harvard University
Leahy, Michael T., *Stoneham*, A.B. 1973, Harvard University
Levy, Sharon F., *Malden*, A.B. 1976, Radcliffe College
Lingos, Tania, *Brockton*, B.A. 1976, Wellesley College
Lucas, John W., *Roslindale*, B.A. 1963, Bowling Green State University; M.A. 1968, Middlebury College
Lynch, Susan M., *Brighton*, A.B. 1972, Regis College
Malone, Michael J., *Waltham*, B.S. 1976, Brandeis University
McDermott, Patricia A., *Randolph*, A.B. 1975, Radcliffe College
McDonald, Gregory S., *South Dennis*, B.S. 1976, University of Massachusetts (Amherst)
Medeiros, Leonard J., *North Dartmouth*, B.S. 1976, Providence College
Miller, Arnold R., *Brookline*, B.S. 1976, Tufts University
Mruk, Donald E., *Chicopee*, B.S. 1976, American International College
Mudgett, Michele K., *Hyannis*, B.S. 1976, Stonehill College
Mukai, John K., *Wilbraham*, B.S. 1976, Tufts University
Nishino, Vincent T., *Weston*, B.S. 1976, Stanford University
O'Connor, James E., *Springfield*, B.A. 1976, Holy Cross College

O'Neill, Judith A., *Dracut*, B.S. 1976, University of Lowell
Palombo, Almena, *Marblehead*, B.A. 1975, Smith College
Perazzelli, Michael E., *Marlboro*, B.S. 1976, Manhattan College
Pessa, Joel E., *Arlington*, B.A. 1975, Trinity University
Phillips, Roland T., *Abington*, B.S. 1975, Northeastern University
Piela, Robert C., *Chicopee*, B.A. 1976, Dartmouth College
Pippin, John J., *Somerville*, A.B. 1971, Harvard University
Potvin, Paul R., *Amherst*, B.A. 1976, Northwestern University
Prazak, Barbara K., *Milton*, B.S. 1976, Boston College
Robertson, Joanne M., *Lynn*, B.A. 1976, Cornell University
Roche, Karen A., *Winchester*, B.S. 1976, Cornell University
Rosenfeld, Paul N., *Newtonville*, B.S. 1975, Cornell University
Rosenfield, Cathy G., *Suffolk*, B.S. 1976, Rensselaer Polytechnic Institute
Rugg, Peter W., *Arlington*, B.A. 1976, Amherst College
Ruocco, Nicholas A., *Lexington*, B.S. 1976, University of Massachusetts (Amherst)
Russo, Jonathan M., *Kingston*, B.A. 1976, Harvard College
Sacco, Frank D., *Lexington*, B.S. 1976, University of Massachusetts (Amherst)
Shapiro, Bradley A., *Pittsfield*, B.A. 1976, Colgate University
Sharaf, David M., *Framingham*, B.S. 1976, Trinity College
Sidebottom, David G., *Weston*, B.A. 1976, Duke University
Smeglin, Anthony M., *Boston*, B.S. 1976, Tufts University
Smith, Melissa S., *Huntington*, M.A. 1974, University of Massachusetts (Amherst)
Sousa, Carl M., *New Bedford*, B.S. 1976, University of Massachusetts (Amherst)
Szymanski, John T., *Stoneham*, M.A. 1971, University of Illinois
Thomas, James M., *Taunton*, B.S. 1976, Boston College
Topulos, George P., *Easthampton*, B.A. 1975, Bucknell University
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Wendel, Mary K., *Lynnfield*, B.S. 1976, University of Connecticut
Wesley, Paul T., *Dorchester*, B.S. 1975, Northeastern University
Wilding, George, *Everett*, M.S. 1976, Pennsylvania State University
Wilks, Bruce E., *Framingham*, B.S. 1974, Tufts University
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Bennett, Diane E., *Somerville*, M.Ed. 1975, Harvard School of Education
Beurskens, Maureen L., *Washington*, B.A. 1977, Smith College
Bohdiewicz, Paul J., *Worcester*, B.A. 1977, College of the Holy Cross
Brogna, Carlo G., *Medford*, B.A. 1976, Harvard College

Brown, Wayne D., *Lexington*, M.S. 1973, Northeastern University
Brunt, Melanie J., *Norwood*, B.A. 1976, Hampshire College
Burke, Marianne C., *Canton*, B.A. 1977, Duke University
Butler, Christopher L., *Hyannis Port*, B.S. 1977, College of the Holy Cross
Byrt, William T., *Framingham*, B.A. 1975, Boston University
Calawa, Christopher A., *Chelmsford*, B.S. 1975, University of Massachusetts (Amherst)
Carlton, Richard A., *Bridgewater*, B.S. 1976, University of Massachusetts (Amherst)
Carusi, Donato R., *Milford*, B.A. 1976, Wesleyan University
Chaisson, Richard E., B.S. 1976, University of Massachusetts (Amherst)
Chamuel, Lyne E., *Allston*, B.A. 1974, Harvard University
Choate, Deborah, *Dennis*, B.A. 1972, Columbia University
Ciano, Peter S., *Milton*, B.S. 1976, Tufts University
Clare, Donna L., *Amherst*, M.H. 1975, Harvard University
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Cox, Michael A., *Southboro*, B.S. 1974, Yale University
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Gonzalez, Federico, *Belmont*, B.S. 1977, Boston State College
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LaPlante, Poul M., *Jamaica Plain*, M.S. 1977, University of Massachusetts (Boston)
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Lewis, George M., *Amherst*, B.S. 1976, University of Massachusetts (Amherst)
Longtine, Janina A., *Palmer*, B.A. 1976, Wellesley College
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Querusio, Luigi G., *Somerville*, B.S. 1976, Boston College
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